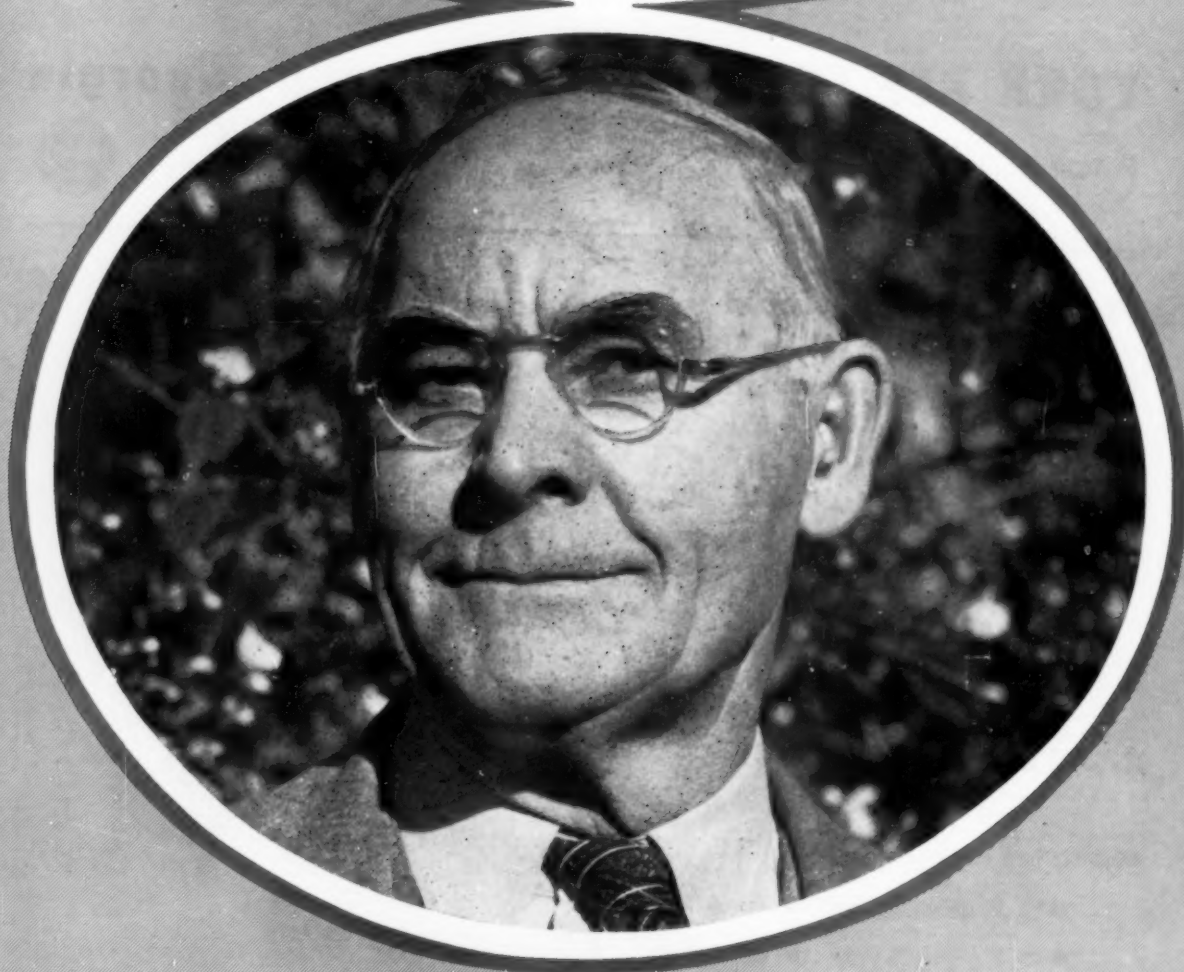


AMERICAN BEE JOURNAL



Volume 98

1958

Number 10

OCTOBER

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- Our Cover Picture -

WHO IS IT? - A Contest, Editor Pat Diehnelt



S. Joaquin Watkins

The September Mystery Guest Is S. Joaquin Watkins President of American Beekeeping Federation

Joaquin was born in Selma, California where he attended the Selma schools. Graduated with honors from the University of California with a B.S. degree in 1927. Depression years about evenly divided between beekeeping and Hale Brothers Department Store in San Francisco. He was assistant buyer for the toy department and later department manager and buyer for several departments at Hale's Mission store; president of California Beekeepers' Association in 1949; chairman of Marketing Agreement Committee in 1950; member of the California Honey Advisory Board in 1952; member of the Executive Committee and chairman of the Promotion Committee of the Federation in 1953, 1954, and 1955; president of the Federation in 1956, 1957, 1958. He has owned bees all his life and is the son of Robert L. Watkins, prominent San Joaquin Valley beekeeper.

The Mystery Guest for This Month

Talk about a pillar of beekeeping, this month's Guest is that and then some. He set up a milestone along the path of this industry which will be an everlasting monument to mark his contribution. Of course, he had good associates, especially the Father of ——— WHOA. That's going far enough. It's your turn now. Send your guess as to who he is and what he has done to Cover Contest, American Bee Journal, Hamilton, Illinois. For the best answer (unless you have won before) a cash award of \$5.00, plus a three year subscription extension. For the second best, two years; third, one year; all others, four months each. As far as room allows, answers will be published in November.

WINNERS IN THE AUGUST COVER CONTEST

Guest W. A. Stephen

No. 1—B. E. Grant, Windsor, N. C.

The front cover of the August Bee Journal is the Extension Beekeeper of the N. C. Agricultural Extension Service, W. A. Stephen. He was born on a farm in Ontario. He and his brother had up to 60 hives of bees while he was growing up. He attended public and high schools in Ontario and graduated from the Ontario Agricultural College. He farmed on the home place and taught school four years before going to college, majoring in agricultural science. After graduating from college, he worked at the Agricultural Experiment Station at Ottawa for ten years in charge of honey research. He was working on his Master's Degree during this time and was awarded it by the University of Toronto in 1941. He was at the University of Wisconsin from 1944 to 1946 with the USDA conducting research work and working on his Ph.D. From 1941 to 1944 he was flight officer with the Royal Canadian Air Force. While at Madison he practically completed the course work for Ph. D. and passed the preliminary exams before leaving. During this time he was on leave from the Ottawa Experiment Station. On leaving Madison, he returned to Ottawa for six months and approved the value of sulfathiazole in the treatment of colonies diseased with American foulbrood. He came to North Carolina on January 1, 1947 as

extension beekeeper. This position had been vacant since the death of C. L. Sams in 1942.

In addition to extension duties he teaches courses in beekeeping at N. C. State College as the only faculty member qualified for teaching such courses. These courses are given during the semester when beekeeping in the field is less demanding but the combination of resident teacher and extension teacher gives him a full schedule, yet he has found time to prepare and publish the widely read extension bulletin, "Bee Lines" and magazine articles. Former Agricultural Editor of N. C. State College, F. H. Jeter, cited "Bee Lines" as one of the most widely accepted extension bulletins for its practical value in North Carolina and other states. During the twelve years that he has worked in North Carolina he has worked with county agents and beekeepers in about three fourth of the 100 counties in the state. The beekeeping project has become popular with junior beekeepers. The state champion 4-H beekeeper puts on a beekeeping demonstration at the annual meetings of the N. C. State Beekeepers Association.

Steve, the name he is called by beekeepers, has spearheaded the state beekeepers association which was originally organized by George Rea in 1917. Both summer and winter meetings are held by

this association. The summer meeting, recently held in the mountains of western North Carolina at Western N. C. College, located at Cullowhee, had the largest attendance on record. In addition to the beekeepers, three commercial firms were represented.

Steve married Eleanor Beth Mims, also of Ontario, on October 7, 1939. They have one son, Bruce, aged 16, who is in the 10th grade of Cary High School, eight miles from Raleigh, where they make their home. Beth is always on hand as his helper in plugging for honey at the state fairs and meetings of the association.

In 1938 he studied for six weeks at the University of Berlin. Later, he and Beth toured Europe and England for two months, visiting the major research institutions and beekeepers. The N. C. Beekeepers' Association looks to him for guidance. He is ever on the job.

B. E. Grant, Retired County Agent of Bertie County N. C., and Recording Secretary of the N. C. State Beekeepers Association.

No. 2—Bobby Marriner, Roper, N. C.

The August Mystery Guest is W. A. Stephen, Extension Beekeeper of North Carolina State College. One of Mr. Stephen's publications is "Bee Lines" which has been very helpful to the beekeepers of North Carolina. He is very interested in the problems of beekeepers in the state, as well as 4-H'ers and their projects. As a 4-H'er I thank Mr. Stephen for all the assistance he has given to me in the past years of 4-H work. Mr. Stephen is always ready to help and encourage the beginner as well as to try to solve the problems of the experts. He is an inspiration to the vocation of beekeeping.

No. 3—C. W. Davis, Shippensburg, Pa.

The August mystery guest can only be W. A. Stephen, extension beekeeper of North Carolina. Being little more than a beginner in beekeeping I cannot say a great deal about his background but I do know he came originally from Canada.

It was my good fortune to meet "Steve" while attending the Beekeeping Short Course at Penn State University this summer. "Steve" did a sterling job in helping Edwin J. Anderson and W. W. Clarke to present a most interesting and complete program.

In the apiary or in the classroom "Steve" commands genuine respect and admiration. Friendly, courteous, helpful, patient. How many such words are there? Well, all those and many more describe "Steve" and I'm sure that wherever his influence is felt beekeeping is all the better for it.

No. 4—Davis Presson, Indian Trail, N. C.

I was pleased to see W. A. Stephen's picture on the cover of the August Journal. Mr. Stephen is a native of Canada and holds an M.A. degree. He is the Extension Beekeeper for North Carolina, a job he has held for ten years. He also teaches at North Carolina State College. He attends beekeepers' meetings and helps organize beekeeping clubs. He is one of our leading writers in beekeeping and he recently attended the International Congress in Europe. I am sure he is an asset to North Carolina and our hats are off to him for he is doing a wonderful job.

No. 5—Caleb Groome Hill, Kannapolis, N. C.

My guess for this guest is W. A. Stephen, native of Canada, with an M. A. degree. Extension Beekeeper for North Carolina for about ten years. He has some teaching in the college. He also went to Europe to the International Congress. He is an outstanding authority on beekeeping. He also is active throughout the state organizing beekeepers' clubs.

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The American Bee Journal — Hamilton, Illinois

Vol. 98, No. 10 October, 1958
 Editor—G. H. Cale
 Associate Editors—M. G. Dadant,
 Roy A. Grout

Published monthly at Hamilton, Illinois.
 Entered as second-class matter at the Post Office, Hamilton, Ill. In the United States, Canada and Mexico, \$2.00 a year, two years \$3.50; three years \$5.00. Foreign \$2.50

a year; two years \$4.50; three years \$6.50. Subscription stopped at expiration date printed on wrapper. Available on microfilm at moderate prices by writing to University Microfilms, Ann Arbor, Michigan.

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The Commercial Beekeeper



The Importance of

Price and Psychological Association In Selling Honey

by John D. Buss

THE BUSS REPORT

A series of five articles about the basic factors in selling and distributing honey in the age of the super market. This is the second in the series. The first one, in September, gave the background history of honey and traced its development from a sales standpoint to the modern super market.

This second part of the series on modern marketing is devoted to explaining some of the basic essentials in expanding a successful honey sales program. As mentioned in the first article, in the average large super market there are about 100 items of assorted sizes and flavors in the preserves, honey, jellies and peanut butter department. The average number of honey items totals only seven, including the different sizes and types of honey.

This same survey (a comprehensive survey made by a leading trade journal) also showed this department had on the average 73 lineal feet of shelf space, probably a department approximately 15 feet long and 5 shelves high. Of this space honey occupied slightly less than 4 lineal feet of shelf space. This space allotment is extremely poor for the sale of honey and highly unfair to

the honey industry. The ratio of the sale of honey, its profit, turnover, related sale item potential in relationship to allotted shelf space will make highly readable copy, as will be brought out in next month's issue.

Once more let us assume ourselves to be customers in a super market and a super market manager. Let us take an imaginary glance down the preserve, jellies, honey and peanut butter department. Can you easily find the honey section? Yes, it is quite easily found because crowded in 4 lineal feet of shelving (could easily be a shelf display one foot wide four shelves high) are seven different items, which is approximately seven inches of shelf frontage per item. And of these items there will probably be included a large 5 lb. jar or tin, a 2 or 3 lb. jar, a honey cream, and possibly comb honey plus 3 or 4 other smaller sizes of jar

honey. What a hodge-podge and an unattractive assortment we have to offer the customer because of our space limitations. Truly, if it were not for the fine merit of honey, our sales would not be as substantial as they are.

As mentioned in the first issue we need a new jar (packaging is the silent salesman) which will be known universally by its shape as a honey jar or container. We also need a new label with more color, designed for eye-appeal, plus a new cap for the honey jar. This would make it possible for it to be stacked safely and securely making it easier for the customer to help herself in her weekly shopping trip. Also many packing cases of honey are not well designed for stacking or for making simple floor displays or for warehousing storage and bookkeeping.

Another element, most vital, and that is the psychological pricing of honey. A recent article illustrates this fact well. They state, it is a well recognized fact among merchandising experts that an attractive psychological price at the consumer level materially increases the salability of a product. On the other hand, an unattractive psychological price stiffens consumer resistance and handicaps sales. It cannot be emphasized too much, according to research findings, that the right pricing of a product is a vitally important factor in its sales success.

A brief run down of some surveys on psychological pricing are as follows. The odd numbers are the most popular, especially the "9s." The price of 39c is the most popular price in a grocery store, closely followed by the 29c price and the 49c price. The 19c price and the 59c price and the 69c price are in heavy usage also. The 25c price and the 35c price follow closely behind the previous figures given. The most popular unit combination is 2 in multiple item pricing.

Let us make a brief resume of honey pricing. Honey is commonly sold in 1 lb. jars, 2 lb., 3 lb., and 5 lb. There is also considerable amounts sold in a 12 ounce jar. To improve the sale of honey we must depart from traditional sizes and packages if it is to be sold for a popular psychological price. For example, a jar of honey (regular size) to retail for 29c, a jar of honey (economy size) to retail for 69c, and perhaps a jar or tin of honey (king size) to sell for 99c. The actual weight is immaterial, (make it the best buy possible for the customer that is economically feasible) it must however, have the appearance of being value received.

To substantiate this idea, walk through the super market with this idea of psychological pricing and notice the frequency in which it is used. While browsing, also notice the attractive packaging and labeling. Much of the attractiveness of the store is due to the colorful packaging of the merchandise itself.

Now that you have browsed through the super market of today with the ideas in mind that we have been discussing pay particular attention to the special displays, the seasonal promotions being offered. They are some of the factors determining the caliber of the store.

Now let's pretend that the honey industry has followed the recommendations of the program outlined in this report. We also have restored the prestige and salability (from advertising and merchandising standpoint) to the product honey. The adoption of these basic rules will make possible developments like this.

The successful selling of any product is a complete comprehensive program. In the background there must be an organized schedule, synchronizing advertising with merchandising events, capitalizing on seasons, and holidays, presenting related foods and recipes to correspond with the event.

All too often we are prone to short cut this procedure by spasmodically distributing point of purchase material to the stores or inserting recipes in newspapers or magazines. These forms have been somewhat successful, but by integrating them into a complete organized plan the results can be phenomenal.

I shall attempt to trace the background of a promotion so that you may visualize the step by step procedure involved. The whole success of a promotion is timing, coordination and cooperation. First an idea must be born, around which the whole plan is evolved. As an example, we are entering the fall season. Thanksgiving is a traditional day for family dinners. So let's capitalize on this theme, the Pilgrims' First Thanksgiving Feast. Now we have the basic thought, let's set the wheels in motion. The first procedure is to enlist the support of the national organizations, the American Honey Institute and the Federation in setting up cost sharing magazine advertisement, split, let us say, between such large organizations as the turkey growers, the yam industry, and the honey industry and probably another industry or two.

After the advertisements are drawn up for several chosen magazines, we must immediately set up the merchandising end. With the same sharing of cost among the cooperating industries, as arranged by our top organizations, a simple point-of-purchase kit must be made to include recipe tags that will be sure to involve the use of the products featured in the magazine advertising, keeping in mind that certain products have much more pulling power through advertising than others.

Now that the wheels have been set in motion to stimulate consumer

interest and desire, we must correlate these to the super market and grocers will have the merchandise displayed at the time the consumer wants it.

We must go behind the scenes and, with the same cost sharing arranged by our honey organizations (Institute and Federation) and by the other industries involved, advertise in some of the trade journals of the grocery field. A veritable publicity department is needed to promote the idea to the food merchants. Write-ups of the idea must appear in the promotional pages of the trade journals; model displays must be made and also photographed to appear in the trade journals.

A resume of the previously mentioned advertising and merchandising plan must be sent to all interested packers, brokers, buyers and merchandising men. The promotion plan must be incorporated on the grocer's order sheets so that adequate stocks of merchandise can be ordered out. The packers in turn must produce extra stocks for the wholesalers.

The sales cycle is now nearly complete, the stores have set up their displays well before Thanksgiving. The holiday spirit is upon us and housewives are wisely shopping for this traditional season. The recipes she read about in the magazines intrigued her, they sounded delicious. Also they would be easily served for Thanksgiving supper. So, she is basing her meal around this recipe. The rest of the story is history. The meal was a complete success, everyone raved about the menu. This pleased her immensely and a new customer for honey was sold. "You know," she said, "I had really forgotten how good honey was, we must serve it much more often."

Thus we set up a complete cycle or a complete sale of the product. We started from arousing the consumer's desires and came to a successful conclusion when she bought the merchandise. It is quite evident that the synchronizing of the plan is the secret of its success. A few days miscalculation can ruin what should have been a successful plan. Fabulous results can be expected from such a promotion. Results of over a 1000% increase in sales are not uncommon for such a plan as this. Many lesser promotions can also be planned but basically the same outline must be followed. Promotions are one of the pillars of the super market. It is true that after successful promotions increased sales will be noted.

(Turn to Page 390)

Next month we will elaborate on statistics (from a comprehensive survey made by a leading trade journal) proving conclusively that

honey is entitled to more shelf space. How to capitalize on these statistics will appear in a later issue of the series.

WE VISIT A FLORIDA BEEKEEPER

by H. J. RAHMLow

Have you ever seen pure orange blossom honey—newly extracted? We saw it for the first time at a visit with the president of the Florida State Beekeeper's Association, David C. Phillips, at Clearwater, Florida. We were surprised to find it so much like white clover honey in appearance—almost water white. In flavor it was mild and delicious.

Mr. Phillips was almost through extracting the orange crop when we called during the last week in April. The season was late due to the coolest winter in years. (Note we say "cool" not "cold." In February and March when northern newspapers printed articles about the "cold" winter in Florida, our night temperatures were usually from 40 to 50 degrees F and 60 to 68 degrees during the day.) Normally the orange flow begins in mid-February and ends about mid-March. It is followed by gallberry, palmetto and tupelo.

A REAL BEEKEEPER

David Phillips was practically born into beekeeping. His father kept bees in Arizona and moved to Florida in 1930 when they operated about 1000 colonies. He spent six long years in the service, from 1940 to 1947, and it almost put an end to his beekeeping career. He had to sell his bees and it was not easy to begin all over again. However, there is an old saying "Once a beekeeper—always a beekeeper" providing you have a real love for beekeeping. David is therefore a born beekeeper, because he couldn't give it up and so started all over again. He not only operates 500 colonies, but has built up an extensive packing and marketing business.

HONEY SELLS FAST

One Saturday evening in April we saw a stack of 36 dozen five-pound pails of orange blossom honey on a special sale in St. Petersburg, Fla., at "Webbs City" in the fruit shipping department. It was selling at the rate of about 4 pails per minute

at 97 cents per pail. The regular price was \$1.39 per pail.

On the label was the name of David Phillips. While we were talking to a woman clerk who had answered many questions about honey asked by customers, Mr. Phillips came up and we were introduced.

Mr. Phillips told us he supplied "Webbs City" advertised as the "world's largest drug store" alone with about 175,000 pounds of honey last year. Their total sales were about 200,000 pounds in the fruit shipping department and 20,000 pounds in the adjoining super market. The reason for the larger sales in the smaller department is due to the promotional services given by Manager J. E. Cunningham and his clerks.

Mr. Phillips invited us to see his extracting and bottling plant and we took the pictures shown here. The building has two floors with a drive to each floor. This makes the extracting and bottling practically two separate operations. Each can be

carried on independently of the other. Extracting is done on the upper floor; the honey runs into the large storage tanks by gravity. The honey for the bakery trade is run into tanks raised high enough so that barrels can be filled as shown in the picture. Mr. Phillips also has modern bottling machinery for filling small containers.

MIGRATORY BEEKEEPING

Mr. Phillips considers a 100 pound per colony average a good crop of honey in Florida. A 200 pound average would be very good while a 300 pound per colony crop is a "once in a lifetime" thrill. In order to get the best crops in Florida it is necessary to practice migratory beekeeping. The bees are moved from citrus to gallberry, which begins to bloom about May 1 to 15 and then palmetto which may overlap the gallberry. Tupelo blooms at about the same time as gallberry but requires special equipment and Mr. Phillips does not go after it.

Anyone driving through Florida these days is impressed with the vast acreage now planted to oranges and grapefruit. In some parts of the state the groves extend for miles on both sides of the highway. They now comprise the second largest acreage of any crop in the state. Producing fine citrus honey, it seems to us, offers a challenge to the ability of any beekeeper. Blooming early—



Phillips' two-story extracting and bottling plant, a drive to each floor, making either operation independent of the other.

late February and through March and into April, it requires expert management to bring colonies to maximum population in time for the flow. Then there is the challenge to put a fine product on the market. Having visited Florida on vacations since 1939, we naturally looked at and purchased orange blossom honey many times—often at high prices at “tourist stands.” Always it was dark, and to our taste, accustomed to northern clover honey, strong in flavor. We were therefore quite delighted when we saw and tasted this light colored, mild and fine flavored honey. We immediately purchased a 60 pound can of it.

Mr. Phillips said that due to the orange flow overlapping the gallberry and palmetto, only a portion of his crop or the honey he buys from other beekeepers is of this light color. Furthermore, consumers here seem to accept the blends and dark honey, as evidenced by the tremendous volume sold at Webb's City Fruit Shipping department. Orange honey turns dark very easily if heated and not cooled quickly.

Mr. Phillips sells about 50% of his dark honey from mixed flowers to bakers in 660 pound drums. It is shipped to New York City, Atlanta, Philadelphia and St. Louis. Florida does not have many large bakeries, and so sales here are limited for that grade.

Table honey is largely pure orange

or a blend; palmetto, gallberry and tupelo. Mr. Phillips sells about 75% of his table honey in 5 pound tins or glass; 15% in 1 pound jars and the balance in 8 ounce and 2 and 3 pound jars.

Beekeeping is on the increase in Florida says Mr. Phillips, because northern beekeepers are coming here in large numbers. The state often ranks second in the nation in honey production. He thinks Florida is getting pretty well filled up with bees. Migratory beekeeping, necessary here for success in commercial honey production, is lots of very hard work.

Hobby beekeeping is very popular and interesting here. If one can get a location near a small orange grove and also adjoining one of the many large areas of palmetto or gallberry which covers so much of the wild land of Florida, a small apiary should be quite profitable. The writer had the pleasure of speaking to the Florida West Coast Beekeepers Association in April and found the members enthusiastic, very friendly and well informed.

BEEKEEPING METHODS VARY

The time and intensity of honey-flows determine several beekeeping operations here as elsewhere. While the bees can fly almost every day during the winter months, there are then only a small number of plants in bloom and so the stores must be

carefully watched. If the pollen supply runs out, brood rearing is slowed down, which is disastrous because the citrus honeyflow may start in late February and a small population at that time would mean a small crop of this fine honey.

Mr. Phillips says he watches his colonies carefully in winter and feeds sugar syrup when necessary. He did not feed very much this last winter.

DISEASE CONTROL

Florida ranks high among the states in effective disease control, according to Mr. Phillips. The state pays 50% of the assessed value of any colonies and equipment burned. This is indeed a step in the right direction and results in greater cooperation between beekeepers and inspectors. No doubt the wax moth is a factor in disease control here. The diseased combs may be destroyed as soon as the diseased colony gets too weak to defend itself against the moth. In the North, diseased colonies may die during winter and be “robbed out” early in spring, spreading disease far and wide.

We have been impressed with the help and services given to Florida beekeepers by the University of Florida and the State Department of Agriculture at Gainesville. A number of helpful bulletins on beekeeping methods, honey plants and uses for honey may be obtained without cost. The services of an extension apiculturist are available to beekeepers.



Honey for the bakery trade is run into tanks, raised high enough so barrels may be filled easily.

Columbia Official Wants Information

We are informed by Sr. Jesus Enrique Ruiz, Apartado Aereo 8427, Bogota, Colombia, South America, that he desires to come to the United States to learn something about beekeeping firsthand as practiced here.

He is an expert in beekeeping and as such has been professor of beekeeping for several years in Agricultural Vocational Schools, Department of National Education in Colombia.

Mr. Ruiz assumes he might be allowed a small stipend, but is in a position to pursue much of his work on his own while in this country.

Any suggestions or requests can be mailed directly to him as above. He comes recommended by the Ambassador to the United States and also by the organization of American States.



These are the colonies I use for royal jelly with plastic cell cups.

Royal Jelly in Plastic Cell Cups

by Robert Stauble

Recently, there has been a great increase in the demand for royal jelly for medicinal purposes. This has encouraged many beekeepers to produce greater quantities of royal jelly. A few years back I began producing it on the bee farm at Saint Mary's Mission House, Techny, Illinois. The method I use is essentially that developed by the Ontario Agricultural College at Guelph, Ontario, Canada, except with a few changes, such as using a double brood chamber instead of a single, and plastic cups instead of wooden ones. There is also a special flight hole near the top of the royal jelly hives.

The reason why I have made these changes is because only a strong and populous colony can produce royal jelly. The double brood chamber takes care of this. It also eliminates the necessity of taking brood from other colonies. This is especially useful since I place two or three frames of eggs and very young larvae in the royal jelly super every five days.

After trying other cups, I switched to the plastic ones. These have proved very satisfactory, handy to use, easy to clean, and really accepted by the bees, but they must be rightly cared for.

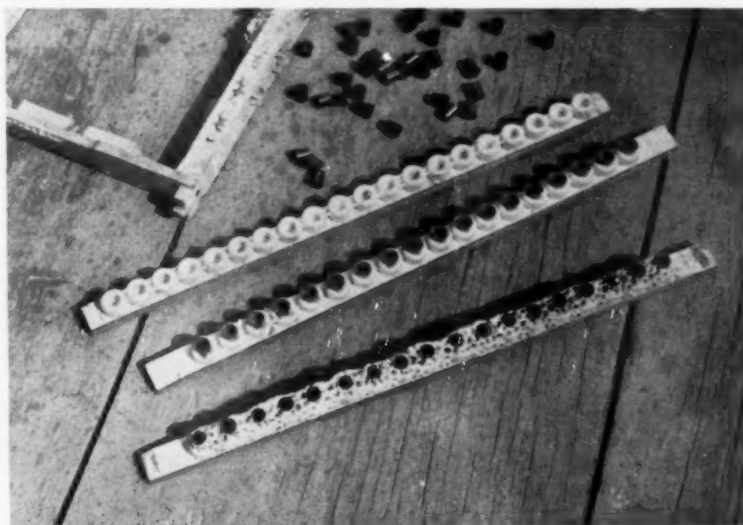
I use a four-story hive - two brood chambers with a queen-excluder, a super, and then a royal jelly section

on top. Within this top section, I place a division board feeder for sugar syrup so that a continuous source of food is at hand for the workers. There are the three frames of eggs and young larvae, and three frames of plastic cell-cup bars.

These three frames containing the cups are not to be inserted in the upper chamber on the same day. I graft one frame each day for three

days and then on the fourth day, start extracting the royal jelly from the first inserted frame. The frames are easily kept track of by placing the first frame closest to the feeder. The following ones are placed next to it. The oldest frame is always nearest to the bee feeder.

The extracting process goes like this. The wax is removed down to



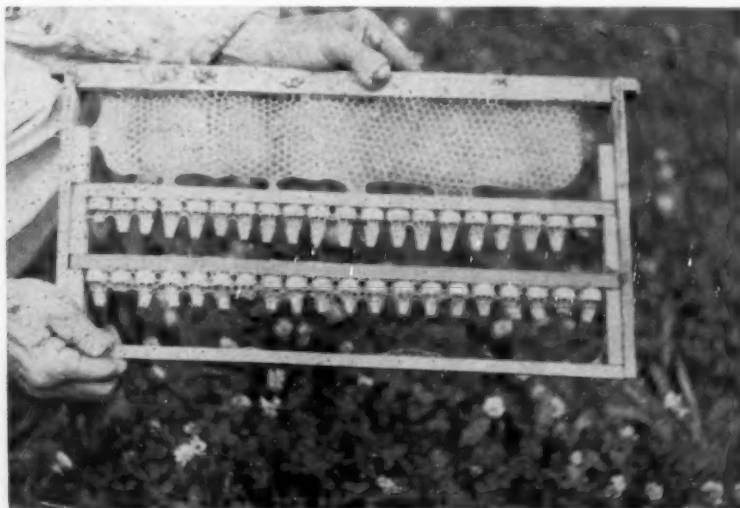
Showing frame for cell bars and some scattered cups. First bar with wooden cups nailed on. Second bar with plastic cups fastened with hot beeswax. Third one shows how the bees wax-in the plastic cell cups.

the top of the plastic cups. No royal jelly is lost, since the bees store it in the plastic cell cup, rarely above the mouth of the cell. Then the larvae are removed with a transferring needle. A small special extractor then takes care of the royal jelly. Four to five hundred cells can be cleaned by this method in about ten minutes. As soon as possible, the royal jelly is placed under refrigeration.

The extracting having been completed, the cells must be prepared for a new crop. Since the plastic cell cups are very durable they can be used over and over again. Sometimes after they have been used repeatedly, a small amount of wax is formed around the mouth of the cell. This should be removed. The thicker royal jelly which might be missed by the extractor should also be removed. The plastic cups are now primed. I use a fifty per cent mixture of water and royal jelly. Upon this drop of prime, I place a larva just large enough to be seen. The smaller the larva the better, since a larger one only eats up more of the royal jelly. These small larvae are taken from one of the three brood frames which have been placed in the top super. This prepared prime of plastic cups is then inserted in the third section of the royal jelly super.

The time consumed in the care of the bees is surprisingly short. In only four and one half hours per day, I can handle fifteen colonies. This includes feeding, extracting, priming, care of frames, transferring of larvae, and restocking with eggs and young brood.

Techny, Ill.



Here 35 out of 40 plastic cell cups have been accepted.

Experimenting With Foundation

by ERNEST W. HARER

The summer of 1957 was a good season in our part of the San Luis Valley for drawing foundation, although the honeyflow was not extensive and some colonies did better than others.

I had one colony with which I experimented just to see how much foundation the bees would draw out. I had traded for this colony in the spring and gave the farmer a sixty pound can of honey as he was tired of taking care of it. The bees are very dark and I wish I knew what strain they are and if it is pure.

This was a double brood chamber ten-frame colony. They had wintered well and after winter they still had a full brood chamber of honey so, in May, I took part of the honey to give to other colonies in my outfit.

About the last of June I put a super of foundation on this colony although the honeyflow was only in its early stages. We had a killing frost about June 19. By the time the season ended, about the middle of August, this colony had drawn into comb four hive bodies of foundation, full depth. If our other bees had done as well there would have been no concern about how to meet expenses.

I run a 400 colony outfit here near

Center, Colorado. I found these bees to be very gentle and it was seldom necessary to wear a veil. (Mr. Harer sent two pictures to illustrate this but they were not suitable to make metal plates. Sorry.)
Colodado

Ontario Notes

Ontario Beekeepers' Association members on June 13, approved a 1/10 cent levy on all honey to be collected by the container supply companies to go to the Canadian Beekeeper's Council.

Canada is proposing a license required to import honey, with a further provision that all honey from without the dominion would have to be labeled or stamped with country of origin, whether distributed in bulk or in retail packages. Also a special label will probably be devised, or a seal, for contributing members, producers or packers to use.

T. H. Shields secretary of the Ontario Honey Producers' Co-operative reports some ten million pounds of the 1957 large crop as a carryover into the 1958 crop season. Apparently the 1958 crop will not be as large as that of 1957.

(From Canadian Bee Journal)

Spain Big Honey Producer

Lucien Billery in Gazette Apicole for May has a very interesting article on production of honey in Spain, entitled "Pastoral Beekeeping in Spain."

The relative heavy production is accomplished from the several possible moves, following the flows. Rosemary and citrus in the Mediterranean Littoral is followed by the same flows in the hinterlands, and these followed by cotton, lavender and heather. Bonnier, years ago had declared Spain as a beekeeper's paradise for plant growth and flower bloom.

Many bees are still kept in the old DeLayens long idea hive but modern hives are rapidly taking over on account of their ease of transportation.

From Limb to Hive



These pictures from Dirk Bloemendaal, Holland, Mich., show how a swarm in an apple tree got into the hive.



Dr. D. C. Bloemendaal, Mayor of Holland and physician-surgeon, cuts off swarm and places the bees in a plastic container.



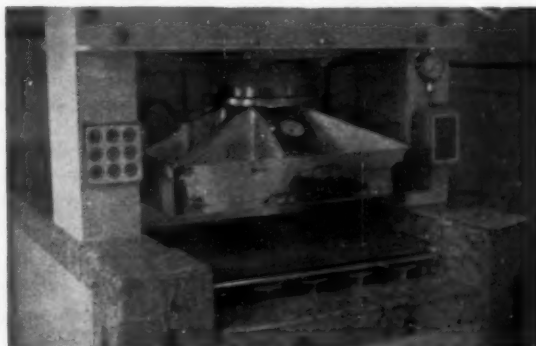
Finally the bees are hived nearby and left overnight to settle down. Dr. Bloemendaal was stung once behind the ear.

A Building in a Hurry



Fiber-glass plastic building by Kelmite Corp., Joliet, Ill., can be quickly put up and suggests possible uses for beekeepers.

Heather Honey Press



Honey press used by Brother Adam, Buckfast Abbey, England, to squeeze out heavy heather honey (Photo from W. A. Stephen)

Southern Honey Plant



Gallberry, common in the South, and a source of good honey, mild, distinctly flavored, heavy and slow to granulate.

Three Generations



Joe Sedlak, Oak Lawn, Ill., snapped this candid of M. G. Dadant, (left); Timothy Charles (center); and Charles (Chuck) right.

The Sideline Beekeeper

W. A. Stephen, North Carolina, here depicts the only sure way of measuring the honeyflow. Cyrus Batts of Jones County is taking the weight of his scale hive. There is a 435 pound gross, 270 pounds of which is net increase since April 1. The big day for two successive years came on May 21 when the hive showed an increase of 18 and 19 pounds.



BEESWAX CANDLE MAKING

by Dr. Richard Taylor

Do you want to get a good return on that capping wax? Then convert it to hand-dipped candles. It is easy, with a system, and the candles soon win you new honey customers by spreading your reputation.

Candles generally are rated according to beeswax content. Pure beeswax candles are not only beautiful but rare, especially hand-dipped ones, and are treasured by nearly everyone. They are one of man's oldest sources of light, and so have gathered much tradition around them, especially in connection with Christian worship and religious holidays. Nothing burns with a lovelier light, and the delicate fragrance quickens all kinds of memories and associations.

Very little time or equipment is needed, and only the minimum artistic skill. I made them in batches of twenty; it would be almost as easy

to make them in batches of forty or even sixty. Here is how to do it.

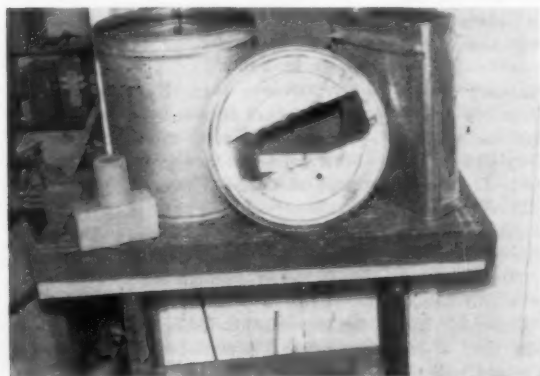
Get a pail, at least 13½" high, preferably higher. This is the *boiler*. Now make a *wax tank* to hang in this, 14" high, 9½" wide and 3" across. I made two of these from one sixty-pound can. Make a *cover* to fit loosely over the pail, with a rectangular hole the size of the wax tank, and solder projections to the wax tank to suspend it, by the cover, an inch or so from the bottom of the boiler, double-boiler principle.

Now make two *dipping frames*, to hold the wicking straight for the first few dips; this is the secret of the whole operation. A dipping frame is simply two 8" wooden bars, held 14-15" apart by rods at the ends. The top bar has a handle, and five tacks along one side to tie the wicking to. The bottom bar is just a

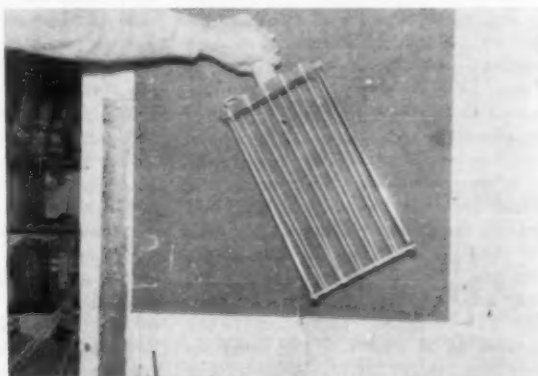
thin strip, such as can be cut from a yardstick, notched at both ends for the rods. The whole frame below the top bar is dismantled after a few dips by unscrewing the nuts at the ends of the rods. Get a machinist to cut and thread the rods for you.

Finally, get regular candle wicking from any candle company or one of the bee supply companies that manufactures beeswax candles for churches. Do not use cord which was not made especially for candles of this size, which should be specified. Specify, too, that they are beeswax; the higher melting point makes a difference, and the wrong size wick will burn improperly or smoke.

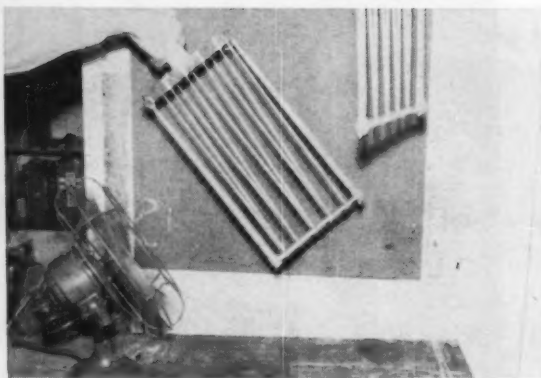
The dipping is done as follows. Nearly fill the boiler with water and put it on a burner. Drop chunks of clean, yellow, propolis-free wax in the wax tank, suspend in the boiler,



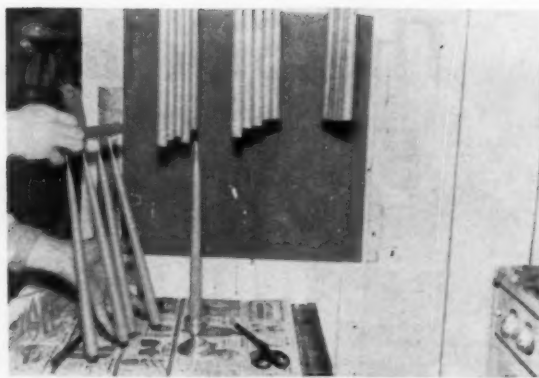
Dipping equipment, showing (l. to r.) beeswax chunks, boiler, cover, wax tank.



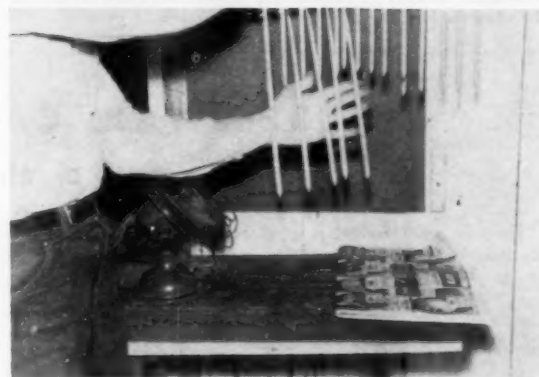
Dipping frame strung with wicking, before dipping.



Top left, after four dips. Frame, as well as wicks, has become coated with wax.



Top right, after ten dips. Frames have been dismantled, partly finished candles divided into groups of five.



At right, finished candles.

and while the wax is melting, wrap the wicking on the two (or more) frames, so as to have ten evenly-spaced strands on each one, five on each side, tied to the tacks at the top. When the wax tank is nearly full and all the wax melted, and the burner adjusted to keep the water at about 200° (or just below boiling), start dipping by immersing the frame clear to the bottom of the wax tank. The first dip is four or five seconds, to impregnate the wicks. Subsequent dips are about one second each, so that the wax goes on to the candles instead of melting off. Each dip is deliberate, and the candles are removed quickly to produce a smooth surface. After each dipping the frame is hung for about three minutes (while you dip the other frame) to allow the wax to cool. The room itself must be quite cool.

After about six dips, snip the wicks loose at the bottom and dismantle the frame. Ten partly finished candles now hang free from the top bar. Cut off five of these from one side, and tie them to a spare top bar supplied with tacks; ten candles at a time are too many as they begin to get fatter. Any straight stick with a handle will do for this. Continue the dipping, five candles at

a time, adding wax to the tank as needed, so that each candle gets about twenty or so dips in all, allowing time for cooling between each dip. The tapered shape results automatically from the fact that the lower part of the candle is in the wax the longest time on each dip, and each dip must be made to the full length of the frame. When done, cut the wax cone from the bottom of each candle with a warm knife, snip them free from the top bars, and the candles are finished. All but the top bars of the dipping frames will be heavily coated with wax, but this can be loosened with warm water and returned to the wax tank.

How Big Was the Swarm?

When I returned from one of my bee yards in March, my son told me that a Mrs. Walsh nearby had phoned that there was a swarm of bees in a tree that had been there two days and would I come and get them. She had assured my boy the swarm was as big as a milk pail. He wondered what kind of a colony would swarm in late March and I told him that it occasionally happened that a colony destitute of stores might pull out "thinking" it could not be worse anywhere else. But surely there were

no such colonies in my yard only fifty rods from Mrs. Walsh's home.

I drove the short distance to her place and she attempted to show me the "swarm." The bees were gone. As we looked up into the tree it proved to be a maple in full bloom and the bees had been working the blossoms for nectar and pollen and then they had returned to their hive. Now would you call this "a swarm of bees in March" or "a first lesson in beekeeping?"

Oscar Ritland
Mauston, Wisconsin.

Sweet Tooth Brings Forty Five Days In Jail

At Beaver Dam, Kentucky, Calvin Parks was arrested on a warrant charging him with the theft of a beehive, bees and honey from Jeff Aldridge of Cool Springs.

A search of Parks' house turned up a dishpan of honey comb and a quart of strained honey. The bees were found discarded in the snow.

Parks was found guilty of petty larceny when tried before Ohio County Judge Truman Taylor and given a 45-day jail sentence.

(from M. V. Matthews, Fordsville, Ky.)

A Nectar Plot

Lew W. White

We read and hear about farmstead shelter belts, post plots, timber lots, and wildlife refuge plantings; then, for bee lovers, why not a nectar plot?

A well planned and well established nectar plot certainly would be a satisfying and profitable thing for any farm owner who keeps bees or for any bee hobbyist who could spare a little good earth for the purpose.

The picture is a view in a seven year old nectar plot. It's total size is 112 x 300 feet with the long way extending north and south. There are 450 Vitex (*Incisa negundo*) trees and 36 honey locusts. The taller growing honey locust trees are toward the center of the plot, with the VITEX on the north and south of them. Beehives are placed among the honey locusts. When the VITEX trees are in full foliage and bloom they almost completely cover the ground.

A dealer in bee supplies, while visiting this nectar plot recently, remarked, "Man this is it, them bees are happy, they can walk to work, and there's plenty for them to work on even though vetch and clovers and just about everything else, is done for for this year." But that is not the entire story! These grand VITEX trees will keep blooming until frost and they begun blooming this year in early June.

The picture was snapped on August 4th, 1958, in midafternoon, and shows seven year old VITEX (*Incisa negundo*) trees in full foliage and bloom and bees working them furiously. It takes a lot of patience and work to get a plot like this started and well established; but it can be done, and the fellow who does it certainly will have something mighty good to look at, talk about and profit from. It might be that some one could figure out a better combination than is in this plot, but this scribe doubts if anything better than this kind of VITEX can be found, especially for an area where summer dry weather or drought is the usual order.



BEEKEEPING AND GENERAL FARMING

by JULIUS LYSNE

Many farmers have a few colonies of bees but all too often they are not given proper attention. In the rush of farm work the bees are neglected, swarms get away and weak colonies may be robbed out and the combs destroyed by wax moth.

This sad state of affairs need not be. The remedy is for the farmer to know more about beekeeping or have some member of the family become the beekeeper. Some one person should have the responsibility. One of the sons would be most likely although girls can do well with bees too.

If the daughter gets the nod as the family beekeeper a word must be said about equipment. The standard ten-frame hive body, when full of honey, is too heavy for a young lady to lift so shallow supers may be used, even for the brood as well as for the honey if preferred. Seven shallows would be required for each colony. The bees are wintered in three with dry sugar on top. A point in favor of this hive is that during the winter bees can move from side to side readily and so winter well as they are always near honey. With this type of equipment girls can do all the work of keeping bees.

At first the women beekeepers may be in doubt about doing well but they can learn as fast as the boys. In the fall, when there is honey to sell, and dad has a good crop of clover seed, the beekeeper of the family will be regarded with new respect.

Bees on the farm are a constant source of interest and delight and a good source of income. There will be more apples, grapes, and melons as well as a score of other good

things on account of them. Neighbors will call you blessed as they will get more fruit and clover seed also. You have a type of livestock that you can pasture on your neighbor's land and be thanked for it. Once you have proved yourself with bees no neighbor will want you to move them. You will be solid with them all. Have at least ten colonies to insure proper pollination for the farm. Place them so they will not molest those not concerned with bees and keep them well requeneed.

The purpose of this article is to point out the importance of having bees on the farm. Not to have them may be a mistake but to neglect them after you do have them would be a greater mistake. If there just isn't time for bees then the matter must be dropped. Nothing can be a worse menace to other bee men than a neglected bee yard. It may spread disease far and wide and the drones may mate with good stock to produce ugly bees to bother your neighbors. Swarms will get away and establish themselves in buildings to cause trouble. Yes, being a beekeeper does mean responsibility like every good project; but the rewards are many.

A good plan is to start with five colonies and increase as time and profits permit. Experience with bees is very good training and it can even lead, for a boy, to getting a job as a farm manager because, more and more, it is becoming understood that bees are also important to successful farming.

Wisconsin

How To Improve Comb Honey Production In The Standard Super

by PAUL STEFFEN

In the December issue Herbert Fritz describes a way to remake the standard comb honey super to make it an airway super to improve the finish of the sections at the edges. I have been concerned with the same problem. The airway supers Carl Killion devised are probably the best in use today. However, for various reasons, I have not yet adopted them, mainly because of the cost of the changes.

I have spent many hours though trying to figure out how to get those perfect sections without making any drastic changes in my standard ten-frame equipment. It is the time and money consuming changes to which I object. After discarding a number of my own ideas for modification I boiled it down to one simple, inexpensive plan. It is this: just fill the outside section holder on each side of the super with last year's cull sections; then fill the intervening rows with foundation sections as usual.

Advantages

1. You make use of Killion's idea that the bees do their best work directly over the brood nest. He provides for this by using eight-frame supers over standard ten-frame hives and closing the remaining space with a slat.
2. You also save foundation and sections by eliminating those unsalable sections.
3. You save honey, in a sense, as the small amounts normally stored in those outside rows are now neatly stored in the center rows.
4. You save bee labor in that the time spent building outside sections is now focused on the fine center ones.
5. You avoid travel stain by not having to leave supers on for prolonged periods in the hope of getting those outside rows filled.
6. Every one of your supers contains bait sections so there is no need to sort supers for that purpose.

Disadvantages

1. You are greatly reducing the culls to supply your supers.
2. You have an annual handling and storing of a sufficient number of culls to supply your supers.

Personally I am willing to accept the disadvantages rather than the task of remodeling my supers. Furthermore I feel that the advantage of having the bees working directly above the brood is of primary importance, a feature not present in the modifications.

Incidentally I heartily endorse the use of followers, or dummy boards, in the brood chamber, a feature which I think should be more widely used. Indiana

What It Means To Be A Beekeeper's Wife

by MRS. CLAY EPPLEY

First I will say that this subject is so broad and varied that to do it justice would require a great deal of research and the time permitted will not enable me to fully cover each phase adequately. Briefly, here is what it means to me. First, I walked into it with my eyes wide open. I have lived with bees all of my life and I knew a little something about them - mainly that they are my No. 1 enemy.

Being a working wife I have had a full time job staying on my job and trying to keep abreast of the times with responsibility of pleasing an employer also. One of the wonderful features of being a beekeeper's wife is that the men called beekeepers are in a category of their own. (If I were ever on a quiz show I should like to take for my subject "Beekeepers.") You soon learn that they eat, sleep and breathe beekeeping and you don't have to worry about a subject which will please them - just talk bees. Then too, you soon learn to keep quiet, though your heart is breaking for them after a sudden (and it can be very sudden) failure. I think there is a big lot of admiration for their stick-to-itiveness. They come up for air and are gone again - for what? Maybe make it this time. Maybe not! Their courage is *insurmountable* and *unsurroundable*, if there is such a word.

One of the things, or I might say some of the things I have never learned to like about the business is the little dabs of beeswax in the shirt pockets which find themselves in the

The Order Of The Honey Bee

This order was created by Anne Louise Condon, wife of Louis de Bourbon, who was a brother of Louis the XIX in 1703. She had aspirations that the order would have the same prominence as the Order of the Golden Fleece and Order of the Garter. From Irish Beekeeper.

Australian Honey Exports July 57 - March 58

Surprisingly West Germany is the highest in rank on imports of honey from Australia with 10½ million pounds. The United Kingdom comes second with nearly 5 million pounds. The balance is scattered with a total export of 15 million pounds for that period.

laundry and then try to get the pockets free of that mess if you can! I also don't like all the wet clothes and shoes that we find ourselves confronted with during what we use to call our rainy season. Another thing we have to learn to live with is, maybe they work until all hours and up the middle of the night to go to work again, but all in all it isn't a bad life and we as beekeepers' wives have a lot to be thankful for - for after all we don't have to worry about a lot of things that other wives do who have husbands in categories other than beekeeping!

Texas

British Bee Publications

The Rothamsted Experimental Station in England is as lavish with its publication of bee and honey experiments at that station as we in American have been reserved. Receipt copies of publication or republication which have been received from there include:

Simpson—Factors which cause colonies of *Apis Mellifera* to Swarm.
Free—Defence of Bumblebee colonies.

Butler & Gibbons—Inhibition of queen rearing by feeding queenless worker honey bees.

Free—Behavior of honeybees when hive is moved to a new site.

Butler—Queen supersedure and swarming.

Bailey—Wild honeybees and disease.

The Beginner and His Bees

Edited by

W. W. CLARKE, Jr.

Marshall D. Levin, Entomologist (apiculture), Legume Seed Research Laboratory, Utah State University, sends this picture of students installing packages. Note that they worked barehanded even though most of them had no previous experience with bees. One of the requirements for passing the course was to get at least one sting. None of them failed to meet this requirement!



**Question from*

Dick Wilson
Modoc, Ind.

► This spring I sent to Louisiana for two packages of bees. I already had nine colonies but I wanted some hybrids for comparison. When they came I put them in hives with comb already drawn. I looked to see if the queens were alive and everything seemed in order. In a week I looked again and found quite a bit of honey, some eggs, and some brood and I was well pleased with them. Then I waited about two weeks and found that one of them was doing fine, with honey and brood. They were also very quiet bees to work with. The other one had very little honey, some brood but all drone, with several eggs in every cell. I could not find the queen. They had one queen cell drawn and it had a dozen eggs in it. Would like to know what happened to the queen and where are these eggs coming from? Should I unite this colony with another or requeen it? Is there such a thing as a laying worker bee?

Answer: It sounds as if you had laying workers in your colony. It is not unusual for package bees or even established colonies which have lost a queen to develop laying workers. Any time that a colony becomes hopelessly queenless, one or more workers take over the job of laying eggs. A laying worker will usually lay more than one egg to a cell and will deposit them on the sides, as well as the bottom of the cell. Since she is not mated, all of the eggs develop into drones.

A laying worker colony is very difficult to requeen and, unless it is

strong, it is probably best to destroy the colony. It may be united with another colony in order to save the combs and bees. If I were uniting such a colony, I would put a piece of newspaper over the poor colony and put the colony with the queen on top of it; this can be done on the bottom board of the good colony so that none of its field bees are lost. Bees in a queen-right colony will seldom tolerate laying workers.

I wish that I could tell you what happened to your queen, but there are too many things happening to queens to venture a good guess. You may have injured her in some of your manipulations, but chances are good that the bees became dissatisfied and destroyed her. She apparently was lost before she had laid many eggs and the laying workers supplied the eggs for the queen cell. The queen cell will not develop a good queen.

**Question from*

Ben Hartman
Theresa, Wis.

► I have trapped a swarm of bees out of a building. Now I would like to know how long it takes before the queen is dead in the building so I can open up and other bees can get the honey out of the building. If I can open up before the queen is dead then the bees will work with the bees inside again.

Answer: We usually assume the colony in a building can be trapped out in about 30 days. After that time, if there are any bees left in the building, and there usually are, we use a small amount of cyanogas to kill

them. This is a powder which may be poured or dusted into the opening.

Cyanogas must be used with extreme caution since it is fatal to you as well as the bees. After using the poison, the building must be closed to keep the bees out for two or three days, in which time the poison should disappear. Then, open the hole and smear some honey around the opening and allow the bees to rob out the honey. Remember, unless the walls of the house are very tight, it is not safe to use cyanogas.

**Question from*

William N. Young
Sacramento, Cal.

► Last fall I had a gallon of liquid honey after melting the wax and last April I added a quart of partially granulated honey and poured the mixture into a shallow berry box lined with wax paper with several pieces of thin wood as landing boards. Two days later the syrup was gone but several hundred bees were dead in the box. What caused this? The syrup tasted very sweet before I added the honey.

A month later, in May, I found a swarm from one of my colonies in a tree. I cut the brush off and placed the swarm in front of the hive, put a piece of board in front of the entrance and in ten minutes the bees began marching in like little soldiers. Next day there were still quite a few on the branch. I shook them into the hive too. A few weeks later I found the wax comb was very lumpy in the middle of one side of three combs but the other side was regular.

What could have caused the lumps? I have an excluder on the hive and I don't know if I shook the queen in from the branch. If not what could happen to her?

Answer: Your method of feeding was probably the cause of your trouble. We prefer to use a feeder can over the opening in the inner cover, or use a Boardman feeder. In almost every case where an open feeder is used, you will find bees being drowned and some fighting. If you must use an open feeder, use a piece of burlap which sags down into the syrup or a solid layer of cork or wood to give the bees more surface from which to work.

In the case of your swarm with the "lumpy brood," it sounds as if a laying worker took over. When drone eggs are laid in worker cells, they

are much higher and appear as lumps; while worker eggs and honey cells when capped are relatively smooth.

It is difficult to tell what happens to a queen. She may be lost in a mating flight, or you may kill her in your manipulation. I suppose a few swarms are hived with an old queen that is disposed of before she lays eggs for replacement. If the queen is unable to mate within a relatively short time (two to three weeks), she may also develop into a drone laying queen. We find this occurs when the queen is locked over a queen excluder or by a drone trap.

**Question from*

Mrs. Edward Baker
Monterey Park, Cal.

► We have recently acquired two colonies of bees and enjoy working with them and learning their ways. The colonies seem well established and we have not had many problems. However there is an insect that resembles a bee that has been around the hives lately. We have seen it capture a bee and fly away with it. We are enclosing one of these insects which we caught while carrying a bee. What is it? How can we protect our colonies from it?

Answer: The insect enclosed in your letter of recent date is the robber fly *Asilidae*. It is known to catch and kill bees. I doubt if there are enough of these insects, nor do they catch enough bees, to cause you much trouble. There is no practical control for this insect.

THE BUSINESS OF BEEKEEPING

by Raymond W. Herrick

How a person happens to pick honey bees as a hobby is a very difficult question to answer.

Part of the enjoyment of getting started is the first purchase of a hive and all of the other necessary equipment.

I first became somewhat acquainted with honey bees as a boy of about twelve years. The farmer that my father worked for at the time had several hives of bees, and it was my job to clean the frames after the extracting. After cleaning, I had to put in the wax foundation and the wire. At that time there was no ready-wired foundation.

Unfortunately, I was never allowed to get near the bees, and it wasn't until after I had married and started raising a family, that the fever to keep honey bees again possessed me.

A relative purchased some very badly neglected hives and asked me to help fix them up. That was the beginning of a very determined effort to have honey bees of my own. Happily, my wife is as sold on honey bees as I am. She works around the hives as much as I, and has gotten over her fear of them.

I traveled about 35 miles to purchase my first hive and bee equipment. The drive back to my home seemed to have stretched about three times the distance. Finally I reached home and set about the task of assembling the hive and then putting

on three coats of good white paint that I had purchased especially for this purpose.

I purchased my hive in February and waited a long two months until the end of April for the arrival of my bees.

Finally the big day arrived and my three pounds of humming, hungry bees were left in my mailbox.

As I was at work, my wife mixed up a syrup consisting of two parts of sugar to one part of water. She then sprinkled this syrup onto the wire screen that covered two sides of the shipping crate. By sprinkling the syrup on instead of brushing it on, there is no danger of breaking off the tongues of the bees.

After the bees had satisfied their appetites and had quieted down, I proceeded to install them in the hive.

Taking out several of the frames to make room for the crate of bees, I placed the crate inside of the hive with the opening on top. I removed the queen cage and made a very small hole through the bee candy and then placed the cage on top of the remaining frames so that the bees could eat away the candy and free the queen. I then closed up the hive for 5 days. The only time that I went near the hive was to replenish the sugar syrup in the Boardman feeder.

After the five days passed, I opened up the hive so that I could make sure that the queen had been released. I

found the queen traveling over the frames and the bees had already started to draw out the foundation. I then took out the shipping crate and replaced the frames that had been removed.

Inspection at regular intervals throughout the following few weeks revealed that the queen was laying and activity inside the hive was proceeding at a satisfactory pace.

Supplementary feeding was carried out until the end of June. At this time the entrance to the hive was opened up to full size. There was no swarming and the bees were working very energetically.

My queen is clipped and marked, as all queens will be that I handle in the future.

After working with my bees since early spring I feel easy and relaxed around them. I have had my share of stings, as have the rest of the family, but the swelling doesn't last long.

I find that if the stinger is scraped off instead of trying to pull it out, the after effects seem to be much milder.

The place that the stinger enters the skin is so small that I haven't been able to find a satisfactory neutralizer for the poison. I would like to hear from anyone that has found a satisfactory method for counteracting the venom.

(Please turn to page 411)

SCIENCE EDITOR

DR. WALTER ROTHENBUHLER
Iowa State College,
Ames, Iowa

INDUSTRY EDITOR

ROBERT BANKER
Cannon Falls, Minnesota

Relation Between Egg-Laying Capacity of Queen Bee and Populations and Honey Production of Their Colonies

F. E. Moeller

Entomology Research Division
Agr. Res. Service., U.S.D.A.¹

The egg-laying capacity of queens and the maximum population of a colony of honey bees (*Apis mellifera* L.) are often greatly overestimated. Populations up to 100,000 bees and egg-laying rates up to 5,000 eggs per day have been mentioned frequently in the literature. Measurements made by the author in Wisconsin and by other workers in various regions throughout the world show that such rates are never attained by single-queen colonies. To obtain a more realistic picture, a 3-year study of egg-laying rates for 125 queens and the resulting colony populations was begun at Madison, Wis., in 1946. The effect of the egg-laying rate upon honey production was also investigated.

The data were obtained from colonies representing various lines of commercial and hybrid stock. Two-pound package colonies established in April were employed in 1946 and 1947 and overwintered colonies in 1948.

The experimental colonies were given optimum room for brood rearing and honey storage at all times. Three standard Langstroth hive bodies were used for brood chambers, and they were interchanged at 7- to 10-day intervals during the spring

and early summer.² Supers were added immediately above the brood to prevent crowding of the brood nests with honey.

Average colony yields indicate the honeyflows that occurred each year. In 1946 the honeyflow was a complete failure, since the average production for 290 test colonies was 59 pounds less than average winter requirements. In 1947, 161 package colonies averaged 96 pounds above winter requirements, and in 1948, 197 overwintered colonies averaged 83 pounds above what they had consumed over a 12-month period. Since package-colony yields in 1947 were substantially greater than overwintered colony yields in 1948, the honeyflow potential in 1947 was probably twice that experienced in 1948.

Populations and weight gains were determined every 14 days during the summer. Hive entrances were screened after dusk the night before the colonies were to be weighed, thereby preventing flight in the morning. After each colony had been weighed intact, the bees were shaken out and brushed off the combs and equipment, and the hive equipment without bees was weighed. The difference between these two weights represented the weight of bees in the colony. A sample of 500 to 800 bees was then anesthetized, weighed, and the average weight per



bee calculated. This weight was used to convert the total weight of bees into the total number for each colony.

The number of square inches of sealed brood present in each colony was determined at 2-week intervals by means of a wire grid with 1-inch-square divisions placed over the sealed-brood areas. In 1946 and 1947 seven of these counts were made on weeks alternating with the population counts, and in 1948 four sealed-brood counts were made simultaneously with the population counts. These estimates yielded information on the development of the brood nests. Multiplying the total square inches of sealed brood present in a colony by 25 gave the number of cells of brood, since there are about 25 cells to a square inch.

Since 12 days are required for brood to emerge after it is sealed, dividing the total number of cells of sealed brood by 12 gives an average daily emergence rate for the 12-day period following the brood count. Since the average period from egg laying to brood sealing is 8 days, this emergence rate can be interpreted as the mean daily egg-laying rate of the queen between the 20th and 8th days before the measurement. The rate may sometimes be an underestimate, since all the eggs produced by some

¹ In cooperation with the Wisconsin Agricultural Experiment Station. The data were included in a thesis submitted to the Graduate School of the University of Wisconsin in partial fulfillment of the requirements for the Ph.D. degree.

² See U. S. Dept. Agr. Cir. 702, "Productive management of honeybee colonies in the Northern States." 1944.

TABLE 1. Egg-Laying Rates, Populations, and Honey Production for 125 Colonies in 3 years.

Year	Number of Colonies	Number of Eggs Laid per Day		Colony Populations		Average Surplus Honey Production (Pounds)	Correlation between Egg-Laying Rate and—	
		Maximum	Average	Maximum	Average		Population	Honey Production
1946	50	1,756	1,046	61,885	34,140	0	0.3853**	—
1947	42	1,831	1,174	64,225	36,326	68	0.7728**	0.5032**
1948	33	2,140	1,301	69,246	48,600	90	0.5559**	0.4313**
3 years	125	2,140	1,156	69,246	39,500	—	—	—

queens may not reach the sealed stage.

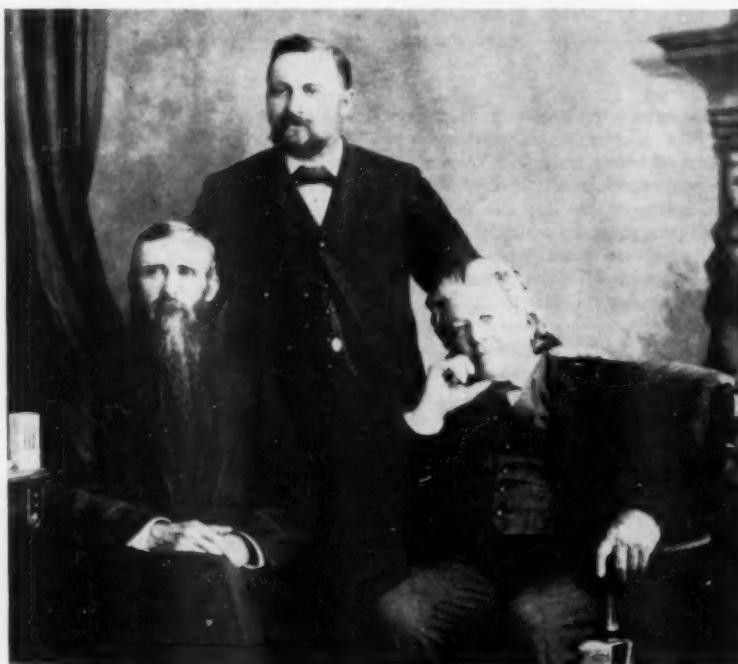
Correlation coefficients between the daily egg-laying rates and colony populations, and between the egg-laying rates and production, were calculated for each season except 1946, when production was abnormally poor. These correlations were all highly significant statistically, as seen in table 1. It is evident that the queen's fecundity is an important factor controlling the population of the colony, and also that the most populous colonies produce the most honey.

A number of other factors affect the amount of brood reared. These are viability of the eggs, strength of the colony, available food (both pollen and honey), amount and position of room for brood rearing, *Nosema* infection, brood diseases, and working conditions as affected by the honey-flow and colony morale. Any of these factors or combinations of them will influence the correlation coefficients obtained. If all the negative factors are removed and the others are optimum, the coefficients may be expected to approximate 1.

The fecundity of a queen is affected by her inheritance and her environment during development. When both factors are favorable, a young queen should be capable of mothering a colony attaining a population of 60,000 bees if the beekeeper employs good colony management to provide proper space and arrangement of brood and storage areas. Regardless of how superior the stock may be, an unfavorable environment may nullify a queen's good inheritance. Many beekeepers are aware of the great variation in size and performance of queens. Inferior queens cannot profitably be introduced to colonies used for honey production. Supersedure daughters of small queens are often twice as large as their mothers, further emphasizing the importance of proper environment in the rearing of queens.

To obtain the optimum performance from a queen, it is important to provide abundant reserves of pollen and honey with adequate room prop-

erly placed for brood rearing and honey storage. This practice will result in strong colonies and help to reduce the tendency for swarm preparations.



THREE STALWARTS FROM EARLY DAYS

Dr. E. J. Dyce, Cornell University, Ithaca, New York, furnishes this picture of three early beekeepers who contributed much to beekeeping as an industry. Seated at the right is the father of modern beekeeping, L. L. Langstroth who, in October 1851, discovered the bee space which at once led to the invention of the movable-frame hive without which the expansion of honey production to its present high level in a hundred odd years would have been impossible.

Standing in the center is D. A. Jones, the first large commercial beekeeper in Canada. In 1880 he produced 70,000 pounds of honey from 400 colonies. By 1884 he had increased to 1,000 colonies. In 1872 he began the manufacture of beekeeping supplies and in 1885 he founded the Canadian Bee Journal. He was also the first to import queen bees into Canada and, for this, he and Benton made a trip to Cyprus, Palestine and other countries.

Elwood, at left, obtained his early training with Captain Hetherington of Cherry Valley, New York and at Starkville he operated up to 1200 colonies in Hetherington-Quinby hives, wintering all these bees in one cellar. He was one of the first to advocate some of the basic swarm control measures in the production of comb honey. His comb honey won first place at the Paris World's Fair and it was exhibited in the same packing

cases in which it was shipped from his apiary. He was very conservative and inclined to question new recommendations until they were proved correct beyond question.

The original photograph was donated to the Cornell Beekeeping Library by A. G. Woodman, Grand Rapids, Mich. His father brought it from a convention in Toronto, Canada, about 1885.

Regulations Affecting The Exportation Of Honey To West Germany

by DR. J. E. ECKERT

On my way home from Australia in April, I had the pleasure of calling on Dr. Duisberg and other officials in Bremen who have the function of checking imported and local honeys to see if they meet the specifications of the West German food regulations. Dr. Duisberg had spent some weeks with us here in California a year or so ago and it was good to see him again and to study his methods in a well equipped testing laboratory.

I was assured that they were considering changes in their pure food laws that would tend to safeguard all of the natural qualities of their foods at the consumer level. The changes will include a revision on the regulations pertaining to honeys, both at the import and local levels. They anticipate that the changes will become effective within two years.

The specifications may involve some slight changes in the methods used by a small segment of our beekeeping industry in the extraction of honey for the wholesale trade, especially if the honey is to go into the export channels.

A great majority of American honeys at the wholesale level will meet the present and proposed West German food standards. A small number of shipments, however, have been found lacking in some degree to their standard of excellence and it would be desirable to call the matter to the attention of the commercial producers.

The West German standards will require that all honeys have a minimum number of units of diastase, invertase, and inhibine or bactericidal properties, as well as having acceptable flavor, a moisture content of 18 per cent or less and be comparatively

clean. They prefer the darker flavors but are buying considerable light honeys as well. No honey will be acceptable if it contains a significant quantity of HMF or hydroxy methyl furfural, a browning product generally caused by excessive heating, or storage for long periods of time at unfavorable temperatures.

The German exports test a certain number of samples from each shipment for diastase, invertase and HMF, and will make tests for the inhibine value if the honey is low in the enzyme units but has no HMF. Honeys that do not qualify will be refused entry as table honeys but may be acceptable for manufacturing purposes.

Since most of our beekeepers clarify their honey by gravity or apply a minimum of 110-115° F. of heat for the purposes of straining, their honeys should continue to be acceptable. In some instances, excessive heat in the capping melter has produced HMF in the overheated honey and if this is added to the general run, additional amounts of HMF will be produced in storage. It has been found that honeys that contain significant amounts of HMF are generally lacking in the desired bactericidal quality. It is much easier to test for diastase, invertase and HMF than it is for the bactericidal units.

Since the honey bottlers have to heat honey to strain and to blend honey to insure cleanliness and to prevent granulation, the processor would prefer to receive unheated honey. So would the West German buyers.

The effect of heat on honey is associated not only with the floral source but with the degree of heat

and the length of time the honey is heated. Honey can be heated to 160° F. to liquefy, strain and prevent early granulation when bottled or canned without serious injury IF it is not held too long at this temperature and is cooled quickly after it has been strained and bottled. Honey that is stored at high natural temperatures for months may be injured as much as a similar honey heated to 160° F. for an hour and then cooled.

So, for export purposes, as well as for the home market, it would be desirable to:

1. Clarify honey by gravity or, if heated for straining purposes, that it be cooled immediately and heated to no higher than 110-115° F.
2. Extract only well ripened honey so the moisture content will be 18 per cent or lower.
3. Place honey in new wholesale containers and store in a cool place until sold.
4. Do not overheat that part of the honey that passes through the capping melter or run it into separate tanks.
5. Never add overheated solar extracted honey to the general amount.

An added suggestion: in taking samples from large tanks it is desirable to take a sample from the bottom or first run, from the middle and from the top. If honey is taken off before it is completely sealed and during the day when nectar is coming in freely, the honey on the top of the tank may contain 2 per cent more moisture than that at the bottom of a large tank.

Davis, California

Apiary Record

Last month in "Commercial" in his article "Cost of Producing Honey," Dr. Montgomery mentions a record book for beekeepers prepared by the Agricultural Economics Department of Purdue University. He offers to send a copy to anyone. We now have ours. It is a generous sized record, 8 1/4 x 11, and has space for labor records, cash expenses and receipts, inventory, management notes, summaries, and factor sheet. For tax purposes and for cost check it is very suitable. If you are interested write Dr. B. Elwood Montgomery, Department of Entomology, Purdue University, Lafayette, Indiana.

Dr. Farrar New Chief of the Office of Bee Culture

With the retirement of J. I. Hambleton as head of the Office of Bee Culture at Beltsville, Maryland, a new man was needed to conduct all the important work being done not only at Beltsville but the field stations. The final choice among all the qualified men considered was Dr. Clayton L. Farrar, in charge of the field station at the University of Wisconsin, Madison.

Oddly Dr. Farrar was the person chosen for the "Scramble" in August and his biography was used in September. In his new position he will conduct the work of the Bee Culture office from Madison, leaving only a part of the functioning of the Beltsville office where it is. We wish you good fortune, Dr. Farrar, and look forward to a long association.



Dr. Milum, First Secretary Of The Federation

Your attention is called to an error in the number two prize winner letter in your September issue. The first Secretary of the National Federation of Beekeepers' Associations starting in February 1945 was Dr. V. G. Milum. At the annual meeting in Jan.—Feb.—1946, the Board of Directors decided to offer the office to Mr. F but he never served as Secretary. He accepted, then declined. Dr. Milum, continued until September 1, 1946, when the late Glen Jones was appointed Secretary-Treasurer at the suggestion and request of Dr. Milum.

SEPTEMBER REPORT OF SECRETARY-TREASURER HONEY INDUSTRY COUNCIL OF AMERICA

FROM JULY 31, 1958 THROUGH AUGUST 31, 1958
REVOLVING FUND

BALANCE — Peoples National Bank July 31, 1958.....\$ 985.29

Receipts:

Sale of Stamps\$1,090.00 \$1,090.00

TOTAL RECEIPTS — Peoples National Bank.....\$2,075.29

Disbursements:

NoneNone

BALANCE — Peoples National Bank August 31, 1958.....\$2,075.29

SAVINGS ACCOUNT — Peoples National Bank.....\$3,124.12

L. H. LITTLE, Secretary-Treasurer

No New Participants In Check-Off Plan Since July 31, 1958

SUMMARY OF 1958 HONEY PRICE SUPPORT OPERATIONS As of August 25, 1958

State	No.	Loans Made		Loans Outstanding		Purchase Agreements	
		Pounds	Amount	Pounds	Amount	No.	Pounds
Arizona	10	232,375	\$21,783	226,875	\$21,244		
California	7	188,567	18,001	188,567	18,001		
Florida	12	264,385	27,243	261,360	26,919		
Georgia	4	117,270	12,290	117,270	12,290		
Mississippi	1	35,695	3,641	35,695	3,641		
So. Carolina	2	18,150	1,900	18,150	1,900		
Utah	1	30,250	2,965	30,250	2,965		
TOTALS	37	886,692	\$87,823	878,167	\$86,960		
Totals as of Same Period ¹							
1957 Program	23	475,910	47,052	428,060	42,594		
1956 Program	11	249,310	25,889	249,310	25,889	1	41,250

¹ Figures as of the 15th of August

CSS - Sugar Division

September 9, 1958

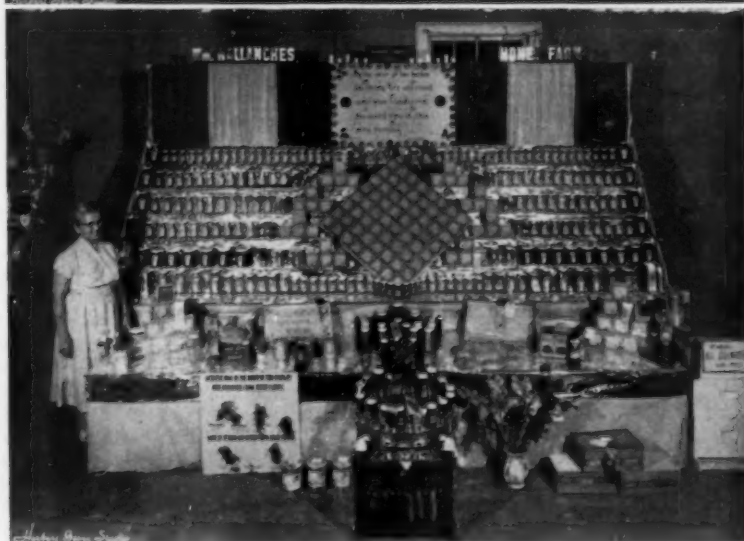
Honey Designated as an Ingredient In Canned Prune Juice

We have copy from the Federal Register from Vincent T. Foley, Kansas City, giving the Food and Drug Administration's order designating honey as an optional ingredient in canned prune juice. On May 25, 1955, the National Canners Association proposed that honey should be allowed in canned prune juice but subsequently deleted this proposal. Water Straub (W. F. Straub and Company of Chicago) who has for many years added a small amount of honey to prune juice, protested the failure of the proposed standard to list honey as a permitted optional ingredient and called a hearing on the issue. At the hearing it was shown that a significant number of consumers in taste tests were able to tell the difference between prune juice with 2 to 3 percent honey and prune juice without honey. Many of them, in these tests, expressed a preference for the prune juice with honey. Honey adds flavoring in addition to sweetness and makes the prune juice more palatable. So, on consideration of all the evidence, it is now concluded that it will promote honesty and fair dealing to modify the definition and standard of identity for canned prune juice, a water extract of dried prunes, by listing honey, in a quantity not less than 2 percent and not more than 3 percent by weight, as a permitted optional ingredient, with suitable label declaration.

MEETINGS



HERE and THERE



Number One Winners at the Illinois State Fair

Association President, Harry E. Dale, walked away with the Governor's trophy for the best booth and number one winnings for his display of comb honey and cut comb honey.

Mr. and Mrs. William Wallanches won the American Bee Journal Sweepstakes trophy and firsts for their collection of white and amber honey, comb of honey for extracting, honey designs, non-Italian observa-

tion hive, beeswax display, gift pack.

Robert Hathaway came out first for creamed honey, Italian observation hive, art design in beeswax, honey vinegar, and educational demonstration in miniature.

W. J. Ghare stood first for his displays of light extracted honey, for amber comb honey, and for white comb honey, variety display, amber extracted display, chunk honey in glass.

In the Middle of the Winter
YOU can visit the beekeeping events in Tampa, Fla.

You can attend the NATIONAL BEEKEEPING FEDERATION CONVENTION Jan. 28-30 at the HOTEL HILLSBORO in Tampa, Fla. and only a few blocks away you may attend the National Honey Show Feb. 3-7 and you may enjoy yourself in Florida on the same trip. This is the first time that these events have been held in one city.

To make the Convention its best YOU will need to attend and to have a great Honey Show we will need your entry.

Certainly you want these events to be outstanding.

More information on the Convention can be obtained from Mr. Robert Banker, Sec'y National Beekeeping Federation, Cannon Falls, Minn. For details on the Honey Show write to Florida State Fair, Tampa, Fla. or address Fred Oren, 2516 Silver Lake, Tampa 4, Fla.

Northeastern Kansas, Kansas City, Kansas, October 5th

The next regular monthly meeting of the Northeastern Kansas Association will be on October 5th, 2:30 p.m. at the home of Mr. and Mrs. Nick Rodina, 2732 North 38th St., Kansas City, Kansas. Charles W. Wright of Perry will report on the annual meeting of the Kansas State Association and Mr. Rodina will report on beekeeping in Europe where he has been vacationing for the past three months. Refreshments will be served.

R. F. Ferguson
Secretary

Norfolk County (Mass.) Walpole, October 6th

The next meeting of the Norfolk County Association will be held Oct. 6, at the Norfolk County Agricultural School, Walpole, at 7:30 p.m. The Club hive will be given to a lucky member at this meeting. The election of officers will take place for the coming season. All come and enjoy and learn more about the honey bee. Edith L. Colpitts
Corres. Sec.

Midwestern, Kansas City, October 12th

The Midwestern Association will meet at the home of Mr. and Mrs. Joseph F. Maher, 9400 Kemper Road, Kansas City, Missouri at 2:30 P.M., Sunday, October 12, 1958. Packaging and marketing will be the topics for discussion. Everyone welcome.

Carroll L. Barrett
Secretary

Middlesex County (Mass.) Waltham Field Station October 25th

The next meeting of the Middlesex County Association will be held Saturday, October 25th at the Waltham Field Station with a potluck supper at 6:30 followed by a business meeting and program.

The last outdoor meeting was held at the home of Dr. Anderson in Winchester. A demonstration of taking off honey with the use of carbolec acid was given.

Lolita Pamplin
Cor. Sec.

National Honey Week October 27th

Get ready for the big push. Send to American Honey Institute, Madison, Wisconsin, for details and selling suggestions. If you distribute your own honey, arrange with your stores for displays. Follow the suggestions in the Buss Report, part two of which appears in this issue in the Commercial Department. If you sell to buyers in bulk urge them to get behind National Honey Week. It is the most important period of the year for honey selling.

Nebraska State Association Lincoln, Oct. 23rd

The Nebraska State Beekeepers meeting will be October 23-24th. Thursday Oct. 23 will be a general meeting and election of officers followed by the banquet in the evening.

Friday Oct. 24 will be beginners' day. Practical demonstrations and question and answer period.

Registration will be at 9:00 A.M. at the College of Agriculture in Lincoln.

Mrs. De Etta Bellin
Sec.

Indiana State Association, Indianapolis, Oct. 25th

The Indiana State Association will have a one day meeting October 25th in Indianapolis at the Washington Hotel.

Morning program, address by President, Paul E. Champ. Fifty

Years of Beekeeping in Indiana, by L. R. Stewart, Newport, Indiana.

Why Keep Bees, by M. J. Deyall, Editor of Gleanings in Bee Culture. Noon luncheon at the hotel, Dr. B. E. Montgomery, Master of Ceremonies.

Afternoon program, G. H. Cale on Advancements made in Queen Rearing.

Roadside Marketing by Allen D. Brooks, Charlestown, Indiana. Business Session. Gilbert Perigo Secretary



Florida Beekeepers Meet for Annual Institute in Ocala National Forest

The second Annual Beekeepers Institute, sponsored by the Agricultural Extension Service, held forth at 4-H Club Camp McQuarrie, near Astor Park, Florida. Beekeepers came from practically all four corners of the State—Chipley, Hilliard, Homestead and Ft. Myers. Teenagers outnumbered adults with a total registration of 122, not counting extension personnel.

K. S. McMullen, District Agent, Millard Coggsall and Dr. D. O. Wolfenbarger presided over the meeting during the time in which papers on research, panel discussions, exhibit tours and entertainment were presented.

Erdman West, Botanist, gave a short resume on the changes in plant life in Florida over the past hundred years. Mr. West also identified plants brought to the meeting by beekeepers.

Mr. Fred Lynn Steely, President of the Sub-tropical Beekeepers Association in Dade County, had the largest attendance at the Institute, numbering 31. Mr. Steely gave a tape recording of one of their meetings in South Florida where the members discussed freely with their moderator, problems and methods used in beekeeping.

Mrs. Fred Lynn Steely gave a very interesting report from Dr. Werthiem on beekeeping in Argentina. She also changed the words in a number of old familiar songs with beekeeping words which were taught the beekeepers on stunt night by Ray Bailey and Cecil Tucker.

Dr. Rowland B. French, Florida Agricultural Experiment Station, Gainesville, gave a report on his work done with royal jelly before World War II and compared the analysis of royal jelly with milk. The panel on production and packing of royal jelly was led by D. C. Phillips, President of the Florida State Beekeepers Association. The panel veered at times from the subject and told how they administered royal jelly in honey and the results people reported by taking royal jelly.

On the tour of exhibits and beekeeping equipment, Frank Robinson explained how his new processing equipment heated and filtered honey for a great deal less than the cost of regular filter equipment.

Honey brown bread made with 30% honey by weight was exhibited. Angus Kemp, a cook, won first prize

(Please turn to page 411)



Your Questions Answered —

Pollen Substitute

From Billy Joe Officer,
Monterey, Tennessee

With reference to the article "The Spring Build Up" by E. H. Ade, I would like to know the ratio for soybean flour and brewers' yeast in his formula for pollen substitute.

Answer

About the proportion of soybean flour and brewers' yeast which Mr. Ade uses, I am in no position to know what his formula is. Dr. Haydak of the University of Minnesota at St. Paul has just sent me a formula for a pollen substitute as follows: 3 parts soybean flour, 1 part dried brewers' yeast, 1 part dried skim milk as a good substitute for pollen. An addition of 10% commercial casein to increase the protein content and 10% dried egg yolk makes the mixture equal in food value to natural pollen collected by the bees in nature.

How to Store Queens

From Robert S. Young,
San Luis Obispo, California

I have read articles in ABJ about a queen storage colony. How is such a colony formed? Will you please explain the procedure.

Answer

We make a nucleus of anywhere from three to five combs without queen, but with bees and brood from several colonies. The nucleus may be in part of a hive or in a special container which you make yourself. Anything that will house the nucleus.

There should be space enough in the center for a frame with a shelf built in the center and slatted sides toward the bottom of the shelf on each side to hold queen cages back to back facing out into the nucleus. We usually remove the attendants in the queen cages. That leaves the queen alone in her cage with the candy hole up resting on the shelf and prevented from falling out of place by the side slats at the bottom. Not too wide a slat. Say, one inch each. This can be made of any thin material that the bees cannot gnaw away.

In a Langstroth frame, you can

keep anywhere from a dozen to twenty-five or more cages with queens for a period of from a few days to a couple of weeks. And use it as long as you want to.

Dusting

From Clyde M. Stewart,
Arlington, Virginia

I found the article in January, "ABJ Experimental Apiaries" particularly interesting but I would like further details. Please tell me how this dusting is done. May I use a regular gardener's dust gun? In what proportions are the sufa and terramycin mixed? Is anything else added? How much is dusted into each hive? What is the strength of the two drugs?

Answer:

About applying dust for disease, do not use a dust gun. It delivers the material in a fine cloud, which is apt to get into the brood cells and kill larvae. Probably the word "dusting" is poorly chosen.

One-fourth teaspoonful of powdered sulfa, one-fourth teaspoonful of Terramycin-25 with a tablespoonful of powdered sugar (or granulated, if you cannot get the other) are applied on the top of the combs of the brood nest three times in the spring between the beginning of brood rearing and the addition of supers for the first flow, at indefinite periods. You can use a spoon, one of the regular kitchen spoons, applying a heaping tablespoonful to the tops of the combs more toward the edges rather than in the center. The bees will then pick it up at their leisure. This is a good preventive for both American and European foulbrood.

Laughing Gas for Honey Removal

According to what I have read, laughing gas may be used to help remove honey from a hive by forcing the bees out of the supers. Will it in any way contaminate the honey?

James F. Bohn
West Bend, Wis.

Answer

Laughing gas (nitrous oxide), produced by heating ammonium nitrate

to about 155%, is a tasteless, odorless gas that has no penetrating tendencies and quickly dissipates in the open air. So there is no danger of its contaminating the honey. However, there are other oxides thrown off in the decomposition of ammonium nitrate that might be harmful if you use a large dose of the nitrate. Also a large dose would defeat your purpose as it would put the bees to sleep so they could not move out of the supers. A teaspoonful of nitrate is enough. Use just enough to make the bees move quickly. They will do their best to get away. Regulate the gassing by the puffs from your smoker and its nearness to the top of the frames.

Answered by
L. R. Stewart
Newport, Ind.

Maximum Production

Please briefly outline a method for the maximum production of extracted honey. Are the hybrid bees better producers? Are they crosser? Is Nosema a new disease?

John A. Swanson
Swea City, Iowa

Answer

For maximum production you must have a real good queen, good combs in at least two standard hive bodies for brood. Reverse them in spring when the queen has the top one pretty well filled with brood; and perhaps once more before the flow. Get the supers on early. Make sure the bees have plenty of food at all times. Check for disease and prevent disease by drugs. The hybrid bees are more productive than the average Italian and they are usually gentle. Nosema is not a new disease but it was not commonly known to be causing the loss of adult bees until lately.

It's time for questions again. Next month recipes. Send your questions, or your recipes. The latter, on publication, will be paid for in subscription.

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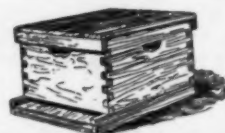
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The interest in "Undercurrent" is increasing and it can be testified to in two ways: not all answers are from "repeaters" and suggested subjects for discussion are more fundamental; also the volume of answers is greater so it is "running us ragged" to catch up. Good enough. For a time dropping the page was being considered; but can't do that now, it is going so well. The subject for September was "How Can Women Be Made More Conscious of the Need to Use More Honey in the Home?"; one answer still leftover on this. For August the subject was "What Do You Consider the Most Important Advancement in Beekeeping in the Last Twenty Five Years?" There are five leftover answers to that. Well, now try the question for October (see the bottom of the third column).

The subject for this month's discussion:

What Do You Think Beekeeping Needs Most Now?

(Suggested by Mrs. David P. Rennie, Norman, Oklahoma.)

ANSWERS

Selected by Postal Date

S. S. Claussen

Byron, Illinois

We need community extracting plants to help those who do not at present have enough bees to finance their own. They should be in charge of capable beekeepers who would also help beginners take care of their honey crops.

Magnus Gudmundson

Hallock, Minn.

I think beekeeping needs mostly a bee with greater wax producing ability because:

1. It would make comb honey production possible in areas where it is not possible now.
2. It would also help in the production of extracted honey because less time and honey would be used in drawing combs in a honeyflow.
3. It would aid in swarm prevention because a colony kept busy drawing comb is not likely to swarm.
4. And of course there would be more income from the beeswax.

H. Spann Leitner

Winnsboro, S. C.

I would say the greatest need of beekeeping today is a sound record of the cost of production. Almost all things that go into production have advanced in cost more than the price of honey. In the Journal for October, 1936, white honey was selling for 8c. Honey of this same quality today sells for 12 or 13c. Compare this with the rise in the cost of production necessities such as labor, equipment, trucks and so on. It is time to discard the old hit or miss system even though it built many a fine business in the

past. Unless we know what it costs us to produce our honey, either failure or disappointment is very apt to be ours.

Roy H. Gibbons

Bentley, Ill.

The thing needed most by beekeepers now is more and better bee pasture. Years ago there was considerable waste land and on this trees and wild weeds grew. These bloomed and the flowers were utilized by the bees. Thousands of acres were in clover for hay and white clover furnished tons of honey. Pastures were allowed to grow and these made more blossoms for the bees.

Now we are impeded by progress. Forests are cut and the land cultivated so more acres have been turned to wheat and oats that produce no honey. With the coming of concrete highways the demand for grass sides brought constant mowing thus reducing bloom.

One thing remains. In flush times the railroads mowed their right-of-ways but now their income is less and these banks are allowed to grow and often weeds and clovers abound.

About the only pasture on which the beekeeper can depend is wild sweet clover and white or alsike in fence rows. Fall flowers still exist but in less amount. The good old days of abundant pasture are gone.

Roy Littlefield

Exira, Iowa

What beekeepers need most is something to wear to help keep them cool during the hot summer months. Here are some suggestions: Gloves with sleeves of lighter material. A small fan that will work under the veil and is run by a small dry battery. Shirts of light material which is also sting-proof.

Additional answer for September:

"How Can Women Be Made Conscious of the Need to Use More Honey in the Home?"

Mrs. Roger Heywood

Council Bluffs, Iowa

If the honey associations would print free pamphlets with honey recipes and distribute them to the stores to be put on jars of honey as an added attraction it would gain a lot of attention. Also if demonstrations were given on honey in the stores more often it would tend to make people understand how honey can be used. If more publicity were used to show how much more value there is in honey than there is in granulated sugar it would help. Also in many stores the honey displays are not as attractive as they should be. They need to be out in front more to show off the honey. To sum up we need free recipes, more demonstrations, and more advertising.

Additional Answer for August:

Roger H. Heywood

Council Bluffs, Iowa

One of the most important advancements in beekeeping today is the development of hybrids by controlled mating. Most beekeepers who have tried them use them altogether. This cross breeding of bees has done for the beekeeper what hybridizing has done for corn. The queens are more true to pattern and they are usually gentle. The workers they produce are above all other worker bees in performance and they have good honey gathering instinct and a certain amount of disease resistance.

For November:

How Can We Convince More Farmers of the Need for Bees for Pollination?

Make your answers as short as you can and still state your points clearly. Send your contributions to "UNDERCURRENT," American Bee Journal, Hamilton, Ill. For published answers, subscriptions will be extended one month per type inch. Answers not used immediately will be used as a part of succeeding "Undercurrents." New subjects are welcome. What do you suggest?

How To



Do It

Address "How To Do It," American Bee Journal, Hamilton, Illinois.

The number one choice will receive a three year subscription extension; numbers 2, 3, and 4 will receive a full year each; numbers 5, 6, and 7 a six month extension each. Balance two months each.

Sometimes there are more items than can be used in one issue (as for this month). Those left over will be considered the following month.

Number One

How to Get Bees to Use the Side of the Foundation Facing the Side Wall

Bees seldom draw out the side of foundation next to the wall of the hive. If drawn comb is used as the end frame the bees will not store honey or pollen or raise brood therein. This is apparently due to temperature differences and heat loss through the side walls.

Solution: Paint the inner surfaces of the side walls with aluminum paint. Cover well and allow to dry thoroughly before using. I find, after this is done, the bees store honey, nectar and pollen on both sides of the end combs. They don't use them for brood however. Apparently the aluminum paint is an insulation.

Walter Minns
East Weymouth, Mass.

Number Two

Face Hives Southeast

To get assistance from the sun and wind in keeping the morale and working pace up among your bees, *face your hives southeast*. There are several reasons for this. First: It puts the bright, early morning sun straight in the entrance, which brings the bees out early to work, and it puts the hot evening, sun on the back of the hive, giving them a shady entrance when it's needed most. Second: It gives them the advantage of the south or east wind in the entrance in the summer and puts the back of the hive against the cold north or west wind in the winter. These are

important factors in keeping seasonal temperatures within the hives, which means a better cluster in the winter, more brood in the spring, and a bigger and better harvest in summer.

Also, if you have your colonies located in a shady spot, it will help you move them far enough to the east for them to be in the sun until about midmorning, then shade over the rest of the day. This will get your bees out early to work and give them shade longer in the late evening when it is so hot and sultry.

Lewis L. Denman
Huntington, Texas.

Number Three

Why Not Make It Nationwide?

Halloween will soon be here again and I have found this period an opportune time to advertise honey. I put up extracted honey in small jars about the size of baby food containers, well labeled. Instead of buying "treats" for the children who "threaten" me on "Beggars' Night" each child gets a jar of honey. And do they love it!

I have found it makes new honey users among the grown-ups because it creates a demand from the youngsters. It helps mothers who have trouble getting the children to eat the more nutritious foods. It not only helps my pocketbook by marketing some honey but it is also lots of fun.

Lester Wright
Ypsilanti, Mich.

Number Four

Here's a Sweet Way to Handle Your Bees

If you would like to work the bees without disturbing their chief business, when you open a hive or lift off a super, sprinkle them with a light spray of sugar water flavored with a few drops of peppermint. The bees will be so attracted to it that they will hardly notice your gentle admin-

istrations as they busily harvest the liquid from the frames and from each other.

I use a plastic clothes sprinkler I borrow from my wife. The bees are not nearly as cross and they are not disorganized as often happens when using smoke. The idea comes from "A Beekeeping Manual" by L. L. Langstroth, published in 1853, page 28.

Ernest J. Morris
Project City, California.

Number Five

To Produce Comb Honey in a Fair Flow

Does your honeyflow come on with a rush and in a week peter out to a fair to light flow? In that case plan to produce only one super of comb honey from each colony. The super of sections should be placed on the first brood body and the second brood body placed above it. On top place shallow supers for the production of extracted honey. The comb honey will be finished and ready to take off in seven to ten days. Your customers will praise this honey.

Julius Lysne
Stockholm, Wis.

Number Six

Emergency Tool Box

This has been one of those years when it has been impossible a greater part of the time to drive near the bee yard due to constant heavy rains. I have kept an empty hive body over the inner cover of a conveniently located colony to serve as a tool box. Newspapers, escapes, smoker fuel, queen cages, or other articles necessary for management in this access have saved many steps when walking into the yard is required.

Keith E. Hudson
Fairbury, Nebraska

Rhubarb as a Water Container

It was 10 a.m., April 26, temperature 42, humidity 30, with bright sun and a cold wind that kept the temperature down all day. An occasional bee was arriving back exhausted after a half mile round trip for water. Something had to be done as this was a precious Starline package. First a sponge was soaked in water and laid on the landing board where the bees soon found it. But this was not enough for there was a very strong colony only 15 feet away and there was danger of lethal warfare at the entrance.

What to do next? Half a dozen rhubarb plants, six inches high with crinkly leaves, grew along one side of the hives in full sun. This was ideal. Once every hour, for the rest of the day, a watering can sprinkled those plants well and clouds of bees made most of their opportunity. The sponge dried out but the rhubarb remained a constant source of water. Cath Brindley
State College, Pa.

To Requeen A Colony With Laying Workers

Give the colony two combs of brood, preferably sealed, and give the bees a queen cell from which the queen is ready to emerge. If the virgin does not become lost in mating you will

find the colony will be requeened and the laying workers gone.

Dalice E. Crawford
Haw River, N.C.

This Business of Beekeeping

(from page 400)

I recently acquired another hive that was already established. This hive is in a 15 acre truck garden that is surrounded on three sides by a swamp. Within less than one half mile is a field of clover that covers about twenty acres. This is where I intend to establish my outyard. This yard is approximately ten miles from my home.

My starter hive is located at home in an alfalfa field. It is here that I intend to carry out my experiments.

In the near future I intend to develop my hobby into something that I can exhibit at the different fairs in this area.

There are mostly one and two hive beekeepers around my home, and so I have rather an open chance to build up this area to the habit of buying honey locally.

My interest in bees in the past has developed from one or two hives. I now want to study the habits, needs, and to specialize in improving this area by pollinization as I believe that this is something badly needed.

Baltic, Conn.

Florida Beekeepers Meet

(from page 406)

for the best loaf of whole wheat bread made with honey; and Nancy Tate, 14, won the junior award in cakes and bread made with 30% honey. After all the loaves of bread were judged, Mrs. Ray Baxter, Home Agent, served beekeepers creamed honey and honey butter on slices of bread with a half-pint of sweet milk.

Colored slides of brood combs with brood diseases were shown by Russell Martin, Apiary Inspector.

Since the problems of the commercial beekeeper are quite different to the sideline beekeeper, a panel on commercial beekeeping was moderated by Millard Coggeshall. The cost of production and the keeping of records were brought out, looked at and discussed by the panel.

A report on Dr. Karl von Frisch's work, interpreting the dances of the bees, was shown on film to the beekeepers.

Fred Oren, chairman of the Na-

tional Honey Show, Florida State Fair, Tampa, Florida, February, 1959, directed his remarks to beekeepers in preparation for this big National Honey Show to be held in Tampa, February of 1959.

The Beekeepers Institute closed its meeting with a panel on bee behavior moderated by the Extension Apiculturist.

The success of the Institute is due in no small part to beekeepers who actively supported the program, with panel discussions, to fit their needs and the situation at hand. This is a beekeepers' meeting in which the Agricultural Extension Service's program of good communication and program projection was carried out and is also bearing fruit to the extent that next year's program will be planned around subject matter and demonstrations that beekeepers suggested at this meeting.

John D. Haynie
Reporter

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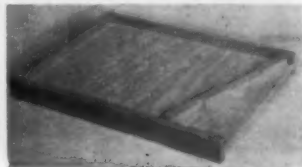
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—Crop and Market—

by M. G. Dadant

THE CROP

As a source of surplus honey, the fall flows have at best been disappointing, though some few sections are reporting good results. In the main the fall crop will go into brood rearing and into winter stores so that colonies, where a fall flow may generally be expected should meet the winter hazards with just a bit more stamina than a year ago, and more than is generally to be expected.

Starting off in fine fashion, the honey crop as a whole has been somewhat disappointing, though California and Oregon have lived well up to expectations. Added to that the Florida, Georgia and Texas crops, along with being short, have in the main given a honey which is not up to the standards of previous years.

From our estimates the total crop for the United States will fall from 5% to 8% below the large 1957 crop, while being above the crop of 1956 by some eight million pounds. The crops of some few extra fortunate states have been balanced by generally short crops. In percentages, only the following states have ranked in production ahead of 1957, Wisconsin 110%, Missouri 150%, South Dakota 115%, Nebraska 125% Maryland 120%, West Virginia 125%, Tennessee 110%, Alabama 120%, Mississippi 120%, Arkansas 120%, Louisiana 120%, Oklahoma 130%, Oregon 175%, California 180%. In addition, the following states rank about equal in production with 1957 or 100%—Connecticut, Rhode Island, Kansas, Delaware, Kentucky, New Mexico, Arizona & Washington.

In the Canadian Provinces, Quebec and Ontario may run only 50 to 60% of a year ago, with the Western Provinces about the equal of 1957 so that the Canadians should have little trouble in disposing of their carryover in addition to the 1958 crop with a possibility of needing from the United States or from elsewhere, additional quantities of honey to carry them through to the 1959 spring.

LATE FLOWS

Late flows for surplus honey have been disappointing. This did look like

it might be one of those heartsease seasons through the central areas, but late rains were cancelled out by cool difficult weather for the bees to do best work, and in some instances surface moisture has not been good though sub-soil should be a point in favor of 1959. A sort of a mixed up season with some getting major results through the year while neighbors not over 100 miles away were wondering what had happened to the earlier good indications. The comb and bulk honey producers have been especially hard hit with ample supers put on and partly filled, with a slump in the later flow and much difficulty in getting finished, or sealed combs either in sections or for the bulk comb jar or tin.

HONEY PRICES

The older beekeepers may well picture how the results of the Western Coast crop developed since 20 or 30 years ago. All too often California set the market—the starting market—for the country as a whole. A big crop in California meant a low starting price for all U.S. Honey. In a measure that is the picture today, though the central and western beekeepers have been slow to accept that they need worry about California conditions, that the market would pick up to its normal in due course. This seems to be the situation in 1958. No doubt but that the early rosy conditions and heavy desert crop in the West did affect the market. In fact we have heard of central western beekeepers selling as low as 10 cents for good white honey. On the other hand, some has moved at 14 cents, very little below a year ago. On the whole if we were to report anything like a price we would surmise that 12 cents for good white honey f.o.b. producers point, would be about it. Yet Montana has sold some new crop at 13½ and we understand one intermountain packer is offering 12½ with cans returned, for good white honey.

With a low starting point, with most of 1957 carryover disposed of

and surely a better demand both abroad and in Canada than a year ago, we can see little doubt except for a rising jobbing market price as the season advances, particularly since business conditions apparently are going to see more of our working force employed with salaries and wages which will be advanced or at least the equal of a year ago.

HONEY MOVEMENT

Almost unanimously our reporters indicate a slow demand for quotations in a carload or jobbing way, but with the retail channels absorbing as much honey as usual, and where the weather has been sharp and cool it has furnished an impetus to a quicker demand for syrups and honey for cakes etc. for the winter breakfasts.

RETAIL HONEY PRICES

While we know of one large jobbing house which has shaded its prices so that a pound jar can now retail for 39 instead of 41 cents, on the whole, earlier prices in a retail way are being maintained. Justly so, since empty package prices are not any cheaper than previously. There will surely be some price cutting in places based on buys of honey at a cheaper price than a year ago, but will not replacements change the picture as the fall wanes? We are inclined to think so. In fact this seems a season when perhaps the buyer will shop and wait for his price advantages before buying. In like conditions the producer and seller should profit by not being too eager to sell unless satisfied with the price offered.

Bees Leave at Night

I hived a swarm about 1 p.m. on drawn combs and some foundation. I watched them that afternoon until about 6 p.m. After they were all settled in the hive I noticed that they did not start working as bees usually do after being hived but they were still there about sundown. The first thing next morning, about 5:30 a.m., when I looked the hive was empty. I never knew bees to do any moving at night. Has anyone else had this experience?

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The Scramble — — A Contest



SEPTEMBER SCRAMBLE

M. J. (Jack) Doyell

Editor of *Gleanings in Bee Culture*. Since it was decided to surprise Jack, no biographical outline was obtained so here are a few notes and a few puffs. He is one of our transplanted northern neighbors, originally from Canada. Years ago he joined the staff of *Gleanings* and has devoted himself to "teaching" all of us in beekeeping. In doing so he has received many honors, life memberships, and the affection of a host of friends. Our hands across the space to a grand guy.

AUGUST WINNERS

Subject: Dr. Clayton L. Farrar
Wisconsin

Number One

A. Mousty, Neuville, Belgium
This "unknown" is Clayton L. Farrar.

EDITOR — PAT DIEHNELT —



Scramble For This Month

This is really an upside down, turned around, cut-up. So get out the paste and scissors. Then, in no time, you'll catch the drift of the picture and discover another of our leaders. A man who has authored highly important publications; headed many important industry groups; devised improved beekeeping equipment and— — — hard to stop the horse when it's running but you finish it. Who is he? Send your answers to "Scramble, American Bee Journal, Hamilton, Illinois." For the best answer, a three year subscription extension; second, two years; third, one year; others four months each. Answers will be published as far as space allows.

He has a brother, Milton and a sister, Nancy. He is in charge of the Entomology Research Branch of the Agricultural Research Service, U.S.D.A. at Madison, Wis. He began in apiculture in 1915 with a single colony and, two years after, he had thirty colonies in standard equipment. He finished an extensive course in Kansas State College in 1922. He served as Apiary Inspector in 1924 and in 1925 he was in charge for the summer at the College. Then he was employed in the Bee Culture Laboratory at Laramie. Finally, in 1940, he was in charge as apiculturist at Madison.

His work is multiple: study of the social life of the bumblebee; food reserves for the proper nourishment of honey bees; pollen supplements; two-queen management; pollination; artificial insemination; package bee studies; management for successful wintering; Nosema disease and its control. In fact he is one of the best investigators in beekeeping.

Number Two

A. J. Jones, Malden, Mass.

Dr. C. L. Farrar, North Central States Bee Laboratory, University of Wisconsin, Madison, is one of our best investigators. He is well known for research, articles, and publications. One thinks of Farrar when one thinks of: two-queen colonies, package management, pollen supplement, nectar secretion, 6¼" supers and hive bod-

ies, genetics, and the development of young scientists.

"The Wizzard of Wisconsin"

Number Three

John Chlopecky, Stockton, Cal.

Dr. C. L. Farrar is a member of the Entomology Research Branch of the Agricultural Research Service, U.S.D.A. He is researching on the diseases of bees, especially Nosema. He wrote the interesting article, "Fumagillin for Nosema Control in Package Bees" in February, 1954. He is not only a beekeeper but one of the bees best friends who works for them, studies them, fights for their problems and teaches other beekeepers what best to do.

Number Four

Harry T. Starnes, Crawfordsville, Ind.

This is Dr. C. L. Farrar of Madison, Wisconsin, best known for his development of the two-queen system of operating bees. Other two-queen systems are variations of the one brought out by Dr. Farrar. He is well known as a man of research and a forceful writer. "He made two queens grow where only one grew before."

Two contestants mistook him for Eugene Killon: Ernest Hahn, Primghar, Iowa and Thomas Charnock of Cape Charles, Va. So, Clayton and Eugene, suppose you get together over beer and skittles.

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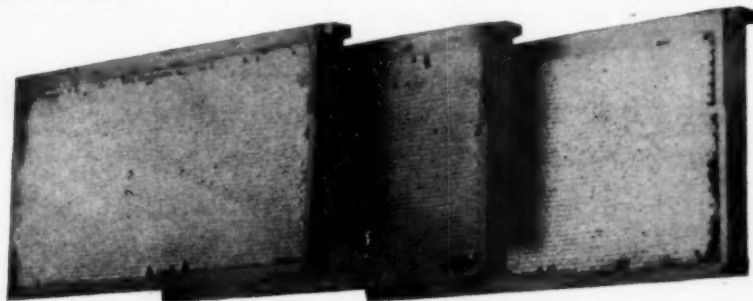
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